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THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—30TH YEAR. SYDNEY, SATURDAY, APRIL 10, 1943. No. 15.

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LUMBAR, VENTRICULAR AND CISTERNAL PUNCTURE: THEIR INDICATIONS AND THEIR DANGERS.

By W. LISTER REID,

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IT is the purpose of this paper to present certain points with regard to the indications and dangers associated with lumbar, ventricular and cisternal puncture. It is not written with the idea of offering anything new, but rather to point out some of the pitfalls that await the unwary, and to help prevent a simple procedure from developing into a tragedy. The actual technique involved in each procedure is simple, so long as the operator has an accurate knowledge of the minute anatomy of the structures that lie in the path of the point of his needle and in its proximity. If he has not this knowledge, he is far wiser to seek the assistance of someone who has, rather than risk the life of his patient and his own reputation by plunging a needle into the unknown depths of the spine and cranium.

Apart from a good knowledge of the anatomy involved, the secret of constant success in carrying out these procedures lies, not so much in a knowledge of what to do and when to do it, but rather in a knowledge of what not to do and when not to do it. Lumbar puncture is the simplest of the three procedures to perform, and it can be done with absolute safety, and yet I have seen death result on more than one occasion, merely because the operators concerned were entirely ignorant of certain hidden dangers. Ventricular puncture carries a somewhat greater risk, in that it is a more major operation; consequently it is performed only in those cases in which lumbar puncture is contraindicated. Cisternal puncture is an extremely dangerous procedure, and I for one have not used this approach for some years; the reasons for this will be explained in the following pages.

Cerebro-Spinal Fluid.

Before I discuss the pros and cons for the foregoing three procedures, it is well to mention briefly the course of the cerebro-spinal fluid and its normal pressure, cytology and biochemistry. This fluid does not circulate in the strict sense of the word, but it does flow along a definite course. It fills the ventricles of the brain, the central canal of the spinal cord and the subarachnoid spaces, and a small amount is present in the subdural space. It is generally agreed that the fluid is formed by the various parts of the choroid plexus that lie within the ventricular system, although the actual mode of its formation is still undecided. The greater bulk of the fluid is formed within the lateral ventricles, and from these and the third ventricle it flows along the cerebral aqueduct into the fourth ventricle and into the central canal of the spinal cord. It then escapes from the fourth ventricle into the subarachnoid space, in which it bathes the whole surface of the spinal cord, cerebellum and cerebrum. The site and method of absorption have not been incontrovertibly proved; but it is generally accepted that at least the greater part of the fluid is reabsorbed into the blood stream of the dural sinuses through the Pacchionian granulations or arachnoid villi.

The function of the cerebro-spinal fluid is mainly a mechanical one; it acts as a buffer for the brain and spinal cord and as a lubricant between these structures and their protective meningeal coverings. The relationship, if any, between the cerebro-spinal fluid and the cellular metabolism of the central nervous system is not known. The average normal pressure of the cerebro-spinal fluid, with the patient in the recumbent position, varies between 110 and 140 millimetres of water; but most authors agree that the extreme normal limits, in people without any neurological lesion, lie between 80 and 180

millimetres of water. Pressures from 180 to 200 millimetres of water should be regarded with suspicion, and any pressure above 200 millimetres should be regarded as being abnormal. In many cases, however, these normal extremes may be abnormal for a certain individual. For example, in a patient whose normal pressure is about 130 millimetres of water, head trauma or the early stages of an intracranial expanding lesion may increase the pressure to 160 or 170 millimetres of water. Conversely, in such a person the pressure may be 80 to 100 millimetres of water following head trauma, which is a relatively low figure when compared with his usual pressure. Each reading should be regarded purely on its own merits, and not viewed on the basis of a collective average. When the patient is in the erect position, the pressure depends on the point at which the fluid is obtained and on the height of the patient, so that the actual measurement of the column of fluid is of little significance. In the normal subject the fluid in the manometer reaches approximately the level of the *cisterna magna*.

The cellular and chemical contents of the cerebro-spinal fluid depend to a certain degree on the level at which the fluid is withdrawn. Table I represents the recognized normal limits of the cells and of the more important chemical substances in fluid obtained from lumbar, cisternal and ventricular levels. This list includes only those chemicals that are somewhat varied in the more common neurological conditions. A slight difference in the cell count and total protein estimation is revealed at the different levels. The difference is much more pronounced in subarachnoid hæmorrhage and meningitis, in which the cells and exudate tend to sink towards the lower end of the spinal canal, and the same holds for cases in which there is a marked increase in the total protein content. In these cases there is quite a difference in the cell and protein estimations of, for example, the first and tenth cubic centimetres. I have made a practice of sending the first cubic centimetre for cell, globulin and total protein estimations, and the next two cubic centimetres for Wassermann and colloidal gold tests. This method provides a more accurate picture, especially if one has to compare the findings at successive lumbar punctures. Estimation of sugar and chloride contents *et cetera* need be done only in special cases, and is not necessary as a routine measure.

Lumbar Puncture.

Most of us have had to perform a lumbar puncture at some time during our careers, with varying degrees of success. Like most things, there is a right and a wrong way, and the adoption of the correct procedure, rather than constant practice, is the more important item towards efficiency. If he attends to the small details, even the rankest amateur can perform a lumbar puncture without the slightest difficulty or distress to his patient. On the other hand, if it is incorrectly performed, it may be extremely difficult and painful, and it may confine the patient to bed for several days because of subsequent backache or headache. It is such a necessary procedure in the diagnosis and treatment of neurological conditions that one should be careful that one's patients come to regard it with complacency and not with fear, as it may have to be carried out several times on the same patient during the course of his illness. If a patient is hesitant about having a second lumbar puncture, it is almost invariably due to its incorrect performance on a previous occasion. Because of its importance I should like to describe the correct procedure in some detail, as there are several minor points that will make it much easier for the operator and much less distressing for the patient.

The position of the patient is most important. He should, if possible, lie on his side on a solid, flat-topped table. The head and shoulders should be flexed, the head resting on a small pillow, and the knees drawn up as close to the chin as possible. The spinous processes should lie in a straight line and in a plane parallel with the floor, while the plane of the back should be exactly vertical. If, as is usually the case, the patient is lying in bed, the same principles apply; but a flat-topped table should be used whenever possible. If the bed sags in its middle, place one or two pillows beneath the leg and knee until the back lies in the vertical plane.

Strict asepsis should be maintained during the procedure, and under ideal conditions a face mask and sterile rubber gloves should be worn. This is not always practicable, and it is not essential so long as the operator is careful not to touch any part of the needle shaft that is destined to penetrate the skin. There seems to be a very wide margin of safety when fluid is being withdrawn from the spine; but I have seen four cases of meningitis occur when this procedure was reversed and some substance (in these cases a spinal anæsthetic agent) was injected into the canal. Thus, when it is necessary to inject some substance into the subarachnoid space, the operator must be sure that his asepsis is flawless, and in these cases it is wiser to wear a face mask and sterile rubber gloves. Methylated spirit is sufficient to sterilize the skin for an ordinary lumbar puncture, but a 2·5% solution of iodine or "Metaphen" should be used if any substance is to be injected. The use of a sterile sheet with a small hole in it helps to preserve the sterile technique.

The operator should be seated behind the patient, as this adds to his comfort and to the accuracy of inserting the needle. The space of election is the third lumbar space, which lies approximately at the level of the iliac crests; but the second, fourth and fifth spaces may also be used. Feel the space with the finger and inject 2% "Novocain" solution into the skin over the space until a small wheal is formed. If a large gauge needle is used, one or two cubic centimetres of "Novocain" should be injected beneath the skin and into the interspinous ligament; but if a gauge 26 or 22 needle is used, the intradermal wheal is sufficient. In fact, excessive injections of "Novocain" into the interspinous ligament are one possible cause of backache following lumbar puncture. Wipe the wheal over with

Table I.

Showing the Relative Pressures, Cell Counts and Chemical Estimations at the various Levels.

Type of Puncture.	Pressure. (Millimetres of Water.)		Cells per Cubic Millimetre.	Total Protein. (Milligrammes per Centum.)	Globulin.	Sugar. (Milligrammes per Centum.)	Chlorides. (Milligrammes per Centum.)	Appearance.
	Patient Recumbent.	Patient Erect.						
Lumbar.	110 to 140 (average) 80 to 180 (limits).	Cisternal level.	0 to 5 lymphocytes.	15 to 45 (depends on method).	Nil.	50 to 75	720 to 750	Clear, colourless.
Cisternal.	110 to 140 (average) 80 to 180 (limits).	Approximately zero.	0 to 5 lymphocytes.	10 to 25	Nil.	50 to 75	720 to 750	Clear, colourless.
Ventricular.	110 to 140 (average) 80 to 180 (limits).	Slight, negative.	0 to 3 lymphocytes.	5 to 15	Nil.	50 to 75	720 to 750	Clear, colourless.

spirits or iodine, as the injected fluid may have forced out a little infected material from the sweat glands. Wait for a minute or so until the local anæsthetic agent has reached its maximum effect before inserting the needle.

The lumbar puncture needle should be carefully chosen; it should have a short bevel, and the point should always be kept very sharp. A gauge 20 needle is the best for general use, but a gauge 22 needle has the added advantage of being finer, although it is more apt to bend, and it is ideal to use for children. The needle should be held by the butt and the shaft should not be touched by the hands. Insert the point into the middle of the anæsthetized wheal with the shaft lying at right angles to the plane of the patient's back. If the butt is rolled between the forefinger and thumb, the needle will be found to slip in with very little pressure. When the point is approaching the dura, gentle pressure should be exerted directly on the top of the butt, the hand being steadied on the opposite hand which rests on the patient's back. After a little practice the operator will be able to feel the needle passing through the *ligamentum subflavum* and then through the dura and arachnoid. Until he is able to feel this he should remove the stilet every two or three millimetres until the fluid escapes.

Should the patient complain of a sharp twinge of pain in the uppermost leg, the needle must be withdrawn immediately and reinserted with the point directed slightly more towards the floor. If the pain is felt in the other leg, the converse holds, the needle being directed slightly more towards the ceiling. If fluid is not obtained, although the needle appears to be in the correct position, withdraw it completely, check the position of the patient and start afresh. The needle must always be removed to the skin level before it is possible to alter the direction of the point.

Theoretically, it is advisable to insert the needle through the dura and arachnoid with the bevel lying in the same plane as the spinous processes, which is also the direction of the dural fibres. In this manner it merely separates the fibres, whereas if it is inserted with the bevel pointing towards the head, it is apt to cut across a few of the fibres and leave a small hole through which fluid may escape when the needle is removed (Figure I). I have

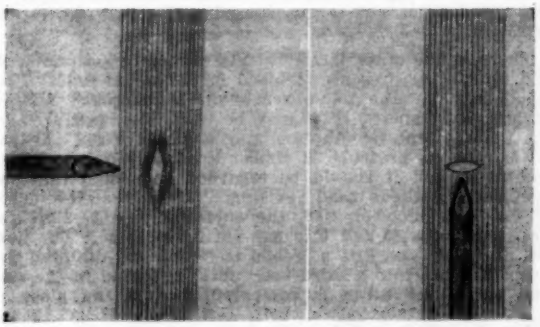

FIGURE I.

Diagrammatic sketch showing bevel of lumbar puncture needle in relation to direction of dural fibres. *A*: Bevel pierces dura in same direction as fibres and separates them, so that fibres come together again when needle is withdrawn. *B*: Bevel pierces dura across direction of fibres and may sever them, so that the severed ends tend to remain apart when the needle is withdrawn, a small hole being left through which fluid may escape.

seen such a small hole in the dura, at autopsy, at the site where a lumbar puncture had been performed. In such cases fluid escapes and the patient may develop a low-pressure headache; in cases of intracranial expanding lesions other more serious symptoms may occur. I have accepted this point, particularly as it does not alter the technique appreciably, and I always keep the bevel pointing sideways until it enters the subarachnoid space and then turn it to face the patient's head.

When cerebro-spinal fluid escapes from the needle, attach the stop-cock (Figure II) to the butt of the needle, and turn the needle so that the bevel is directed towards the patient's head. Attach the manometer to the stop-cock and turn the tap so that the fluid flows up the glass tubing. Before the pressure reading is taken it is essential to reassure the patient that the procedure is finished and to tell him to relax completely. Extend his neck and legs slightly until he is quite comfortable and not in a strained position. Wait for a further minute or so, especially with nervous patients, to allow the fluid level to reach a constant minimum, and then measure the fluid column in millimetres. Not infrequently, an initial pressure as high as 300 millimetres of water will fall gradually to normal when the patient relaxes completely.

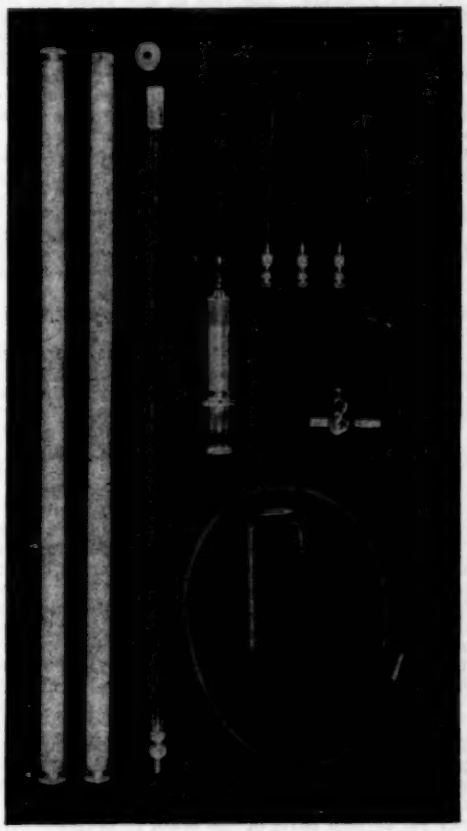

FIGURE II.

Photograph showing complete lumbar puncture set-up, including graduated glass manometers in metal containers, fine bore rubber manometer, 2·0 cubic centimetre hypodermic syringe and needle, gauge 18, 20 and 22 lumbar puncture needles, and three-way stop-cock. These can be obtained in either "Luer" or "Record" fittings.

If a glass manometer is not available, a rubber tube may be substituted. This should have a very fine bore (one or two millimetres), with an adapter at one end to fit the lumbar puncture needle and a U-shaped glass tube at the other end. The advantages of the rubber tubing are its cheapness, the ease with which it can be carried and sterilized, and the fact that it is less likely to be damaged. The disadvantages are that it is difficult to detect the presence of air bubbles, and sufficient fluid must escape to fill the whole piece of tubing before a pressure reading can be made. This means the loss of more fluid than with the glass manometer before a reading is made, and consequently the initial reading will invariably be lower.

This disadvantage is minimized by the use of a rubber tubing with a very fine bore, one or two millimetres. If it is larger, one to three cubic centimetres of fluid may escape before the fluid head becomes visible, and such a rapid loss may in certain cases be a source of danger to the patient.

It is quite inaccurate to attempt to estimate the cerebro-spinal fluid pressure by the rate at which it escapes from the end of the needle. Most patients are in a state of tension during the procedure, especially on the first occasion, and it may take some minutes for the pressure to settle down to its normal level. Again, if a gauge 18 needle is used, the fluid will flow out rapidly even when it is under normal pressure, whereas if a gauge 22 needle is used the fluid will merely drop out, even in the presence of an elevated pressure. The rate of flow from the needle will also depend on the position of the patient, on whether the point of the needle lies free within the subarachnoid space or whether there is a block within the bore or at the point of the needle, and on whether there is any obstruction in the cerebro-spinal fluid pathway. Consequently, the only way to obtain an accurate pressure reading is to see the column of fluid in a manometer.

It is well to measure the cardiac and respiratory oscillations, as they are usually increased when the intracranial reservoir is large, as in hydrocephalus. The initial and final pressures are recorded and the difference is compared with the amount of fluid withdrawn. For a given quantity of fluid removed, the fall will be much greater if the ventricles are normal in size than if the ventricular reservoir is large. The drop in pressure is most pronounced in cases of complete spinal block, even after the removal of very small quantities of fluid.

When pressure readings have been made, the required amount of fluid may be withdrawn, and there is practically no safety limit so long as no intracranial expanding lesion is present. If the pressure is elevated, remove only one cubic centimetre very slowly for examination of its appearance, and for estimation of the cell, globulin and total protein contents. Other tests can wait until an intracranial expanding lesion has been excluded. The removal of large quantities of fluid, especially if the removal is rapid, is extremely dangerous in the presence of a supratentorial or infratentorial expanding lesion, because of the liability of increasing any herniation of the hippocampal gyrus or cerebellar tonsils that may be present. If one imagines a pipe filled with fluid, with a partially closed valve at its centre point and the fluid pressure approximately equal on each side of the valve, and if the fluid is then removed rapidly from the lower side of the valve, the relative increase in pressure on the upper side will tend to force the valve more securely down onto its seat.

A similar state of affairs exists with intracranial hydrodynamics. When a large expanding lesion is present, there is a general shift of the intracranial contents to accommodate the extra mass. In the later stages there is a tendency for certain parts of the brain to herniate through the various intracranial foramina. The most important of these are the *incisura tentorii* and the *foramen magnum*, and the structures that are forced through these foramina are the hippocampal gyrus and the tonsillar lobe of the cerebellum respectively (Reid and Cone;[1] and Reid[2]). If, when such herniations are present, large quantities of fluid are withdrawn from below too rapidly, the relative increase in pressure above will tend to force the herniated tissue further downwards. This in itself is not of vital importance; but when the herniated tissue reaches a certain size, it compresses the vital structures in the mid-brain and medulla, and this compression will prove fatal if unrelieved. I have seen two such tragedies, and by the time the patients were admitted to hospital it was too late to attempt any operative procedure to relieve the condition. A similar state of affairs may occur in the case of a large intraspinal expanding lesion, and it is unwise to remove fluid from below in case of complete or almost complete spinal block. I have seen one such case, in which a pronounced increase in neurological signs followed the removal of fluid by the lumbar route.

I may seem to have gone to unnecessary lengths in describing the technique for lumbar puncture and the dangers associated with the removal of fluid when the pressure is high; but I have wished to demonstrate the simplicity with which lumbar puncture can be performed with safety and comfort, and to emphasize the dangers of removing too much fluid too rapidly in cases of high intracranial pressure. If, for some reason, it is not possible to proceed immediately with a craniotomy, there is one method by which the intracranial tension can be relieved with relative safety and the patient thus tided over for a few hours until the major operation can be carried out. The lumbar puncture needle is inserted and a fine bore rubber manometer with a U-shaped glass tube at one end is attached. The manometer is held upright for a few seconds until the fluid reaches its highest level, when it is lowered slowly until the fluid just reaches the outlet of the glass tube. The glass tube is then fixed to an upright stand with adhesive tape, and a large test tube or some such container is secured beneath the outlet to catch the fluid. A mark is made on the stand at a level of 120 to 140 millimetres above the point of exit of the lumbar puncture needle, and the whole apparatus is left thus for ten minutes. At the end of each succeeding ten minutes the glass tube is lowered one inch, until the outlet reaches the 120 to 140 millimetre mark on the stand, where it is allowed to remain for as long as the patient will tolerate the needle in his back. In this manner fluid is withdrawn and the intracranial pressure is reduced to normal very slowly over a period of an hour or more; the dangers usually associated with such a withdrawal are thus minimized.

Even with this method the risk is not completely eliminated, and during the procedure a careful watch must be kept by the nursing staff; any alteration in the patient's pulse, respiration or state of consciousness, or in the size, equality and reaction of the pupils, must be noted and reported immediately, and the flow of fluid stopped. If the patient's condition does become worse, the surgeon must be prepared to put burr holes in the skull and tap the ventricles with the least possible delay. In such cases the major craniotomy, if it is to be performed at all, should be carried out as soon as possible, as it usually means that a hippocampal or tonsillar herniation is present and the patient is living on the edge of a very dangerous precipice.

There is one other factor that is commonly encountered, and that is the presence of blood in the spinal fluid. This blood may be due to subarachnoid hæmorrhage and of pathological import, or it may be traumatic, produced by the point of the needle damaging a small vessel. In the latter case its presence is almost invariably due to faulty technique, and it should be regarded as a sign that the operator's methods need revising. If the first few drops of fluid are blood-stained, the operator should allow the first five drops to run into one small test tube. The next ten drops are run into a second test tube and the final five drops are run into a third test tube. The fluid in the first and third test tubes is compared, and if the blood is uniformly distributed in both test tubes, it is due to subarachnoid hæmorrhage and was present before the puncture was made. If the fluid in the first test tube is more deeply blood-stained than the third, the blood is of traumatic origin and due to the lumbar puncture. Globulin and total protein estimations are inaccurate in the presence of blood; but this inaccuracy can be minimized by centrifuging the fluid as soon as possible, so long as not too much blood is present.

With regard to the contraindications for lumbar puncture, the only time when it should not be performed is in the presence of infection of the skin and tissues in the lumbar region. It may even be carried out diagnostically in cases of suspected spinal epidural abscess; but care must be taken not to insert the needle any further once pus is encountered, or the infection may spread to the subdural or subarachnoid spaces. The following is a summarized list of the common reasons for carrying out lumbar puncture:

Diagnostic:

(i) To ascertain the appearance, pressure, cytology and biochemistry of the cerebro-spinal fluid.
(ii) Encephalography. Air or oxygen is injected by the lumbar route and directed to the ventricles or subarachnoid space, and this reveals the outline of the brain in subsequent X-ray films.
(iii) Graduated lumbar manometric test. This test reveals the presence of a partial or complete spinal block, and provides a rough indication of whether the block is in the cervical, dorsal or lumbar region.
(iv) Lipiodol injection, preparatory to fluoroscopic examination to locate the lower end of an intraspinal lesion.
(v) Myelography. Some neurological surgeons use air in preference to lipiodol to detect intraspinal lesions. Air is safer than lipiodol and produces no reaction; but it is much less satisfactory as far as the X-ray results are concerned.

Therapeutic:

(i) Drainage of cerebro-spinal fluid under certain circumstances in neurological and neuro-surgical conditions.
(ii) Subarachnoid air insufflation; injection of air by the lumbar route and directed to the cerebral subarachnoid spaces in the treatment of post-traumatic headache.
(iii) Serological; for the injection of sera *et cetera* in certain inflammatory conditions, such as meningitis, tetanus *et cetera*.

Anæsthesia:

For the injection of spinal anæsthetic agents.

The complications of lumbar puncture are relatively few; but they are unfortunately rather common and consequently very important with regard to the patient's comfort. The commonest complications are the following:

1. Backache. Pain may be experienced during the procedure, or there may be severe pain in the back for some days afterwards. Avoid this by using the correct technique.

2. Headache. This usually occurs when the patient assumes the upright position too soon after the removal of fluid. It is often due to a low pressure causing traction on the intracranial dural sinuses *et cetera*. To avoid this, it is wise to make the patient rest in the recumbent position for at least an hour after the removal of two or three cubic centimetres, and longer if more fluid is withdrawn. In severe cases of low pressure headache, raise the foot of the bed and force the intake of fluids.

3. Sciatic pain. This is not an uncommon complication of lumbar puncture, and is due to faulty technique, trauma to the nerve roots being caused by the point of the needle.

4. Hippocampal and tonsillar herniation. This has been discussed earlier, and can be avoided if sufficient care is exercised.

5. Infection. Any infection following the routine performance of lumbar puncture must be rare, but it does occur when substances are injected into the spinal canal, and when such an injection is contemplated all possibility of infection should be guarded against by rigid asepsis.

Ventricular Puncture.

Ventricular puncture is a more severe operation than lumbar puncture, and consequently, the indications for its use are much more limited. It is usually performed only when the information required cannot be obtained by lumbar puncture. In cases of high intracranial pressure it is dangerous to remove much fluid or to inject air by the lumbar route, and in such cases the risk is greatly minimized by the use of the ventricular route, which is above the level of any hippocampal or tonsillar herniation. Ventricular tapping to remove fluid in case of emergency and ventriculography are the two commonest reasons for ventricular puncture. Occasionally air will not enter the ventricles when it is injected by the lumbar route, even after repeated attempts. In such cases it is necessary to inject the air directly into the ventricles for pneumographic studies. Ventricular puncture is also performed, in certain circumstances, for the purpose of fixing a Frazier needle into one lateral ventricle to institute constant drainage. This should be done only in extreme circumstances, as there is a real danger that infection will spread along the needle track into the ventricles. If the procedure must be used, the needle should not be left in any longer than is absolutely necessary, and the aseptic technique must be exceptionally rigid. Ventricular puncture has also been used by some, in conjunction with lumbar or cisternal puncture, to compare the fluid pressures at the different levels and thus detect the presence of a partial or complete block in the cerebro-spinal fluid pathways. Merritt and Fremont-Smith[3] have made an interesting observation, ascertained by ventricular puncture, with regard to the relative protein content of the fluid in each lateral ventricle, in cases of glioma of the cerebral hemispheres. They reported eleven cases and noted that the protein content of the fluid in the ipsilateral ventricle was greater than that of the fluid in the contralateral ventricle, sometimes to a pronounced degree.

There are no special contraindications to ventricular puncture, except the presence of infection of the scalp, bone or other tissue through which the needle must pass. However, it should not be used if the necessary information can be gained or the necessary treatment can be carried out with safety by the use of the lumbar route. There is a certain risk of causing hæmorrhage from a blood vessel torn by the point of the brain needle; but with care one can feel such vessels, and by gentle rotation of the needle, allow the point to slide past without damaging the vessel. There is a certain amount of damaged tissue left in the path of the needle, with subsequent gliosis. This produces no ill effects so long as the needle is introduced through the "silent areas" of the brain, and so long as too many attempts are not made in the same direction. Not more than one puncture should be made in any one direction, except when it is necessary to reinsert the needle at a later date to relieve the pressure. If the first attempt is not successful, the needle should be withdrawn, the position of the head checked, and the needle inserted in a fresh direction. The introduction of infective organisms must always be kept in mind and guarded against by rigid asepsis. In any of these three procedures I cannot too strongly emphasize the necessity of ultra-rigid asepsis, for the introduction of infective organisms into the subarachnoid spaces usually means the death of the patient or, at best, a prolonged convalescence.

The most important danger in ventricular puncture lies in the shift that occurs in the intracranial contents following the release of pressure by the removal of fluid. When a lesion, such as a neoplasm, cyst, abscess *et cetera* expands within the cranial cavity, it does so over a period of months or even years. During this time the brain has an opportunity of accommodating itself gradually to the additional bulk and pressure of the lesion. When fluid is removed from the ventricles, even over a period of many minutes, there is a comparatively rapid readjustment of the intracranial structures towards the point of least resistance, which in this instance is the ventricular cavities. In the majority of cases there are no apparent ill effects, only a feeling of relief by the patient and an improvement in his general condition. Sometimes the patient experiences a sudden, sharp headache, which soon gives place to a sensation of relief, and this is probably due to an alteration of pressure or traction on the intracranial dural sinuses or on certain of the blood vessels near these sinuses. I have seen only one death following a ventricular puncture, and at autopsy I found extremely advanced atheromatous changes in the cerebral arteries, to such an extent that the basilar artery was almost totally occluded. The shift, occurring after the release of the intraventricular pressure, must have caused a further interference with the blood flow to the vital centres. Fortunately such accidents are exceptionally rare.

When the ventricular fluid is replaced by air for ventriculography, in the presence of an expanding lesion, the danger is greatly increased. In such circumstances the surgeon should be prepared to proceed immediately with the removal of the expanding lesion, if such a lesion is evident in the X-ray films. The presence of air in the

ventricular system has a definite irritating effect, causing an increase in the intraventricular pressure that is frequently higher than that which existed before the air was injected. Consequently, the longer the delay in removing the expanding lesion, the greater is the likelihood of the occurrence of certain complications. If there is an unavoidable delay between ventriculography and subsequent craniotomy, the surgeon should always have a sterile brain needle available, so that the ventricles can be tapped with the least possible delay should things go wrong. It must be remembered that one is often dealing with seconds and minutes in these cases, and not with hours, as the following experience will illustrate.

On one occasion I had injected air into the ventricles of a man who had a large temporo-parietal lobe *glioblastoma multiforme*, and the patient was moved from the operating room to the X-ray table. While I was standing beside the table, supervising the position of his head, he suddenly stiffened, lost consciousness completely and assumed the position of decerebrate rigidity. The ipsilateral pupil became dilated and fixed to light and the ipsilateral upper lid drooped. The bandages were removed immediately and a brain needle was inserted into the ventricle. Fluid and air escaped at a pressure that was much higher than that which existed prior to the introduction of the air, about half an hour earlier. As soon as the intraventricular pressure was released the patient recovered consciousness, in less than a minute. If the puncture had been delayed for some time, the patient's recovery would certainly have been much slower, and perhaps would not have taken place at all.

This is an extreme example, for there are rarely any ill effects during the few hours following ventriculography, and frequently it is quite safe to leave the patient for several hours, or even days, before removing the expanding lesion. However, I have made it a rule not to carry out a ventriculographic examination, except in circumstances which make it unavoidable, unless I can proceed immediately with the craniotomy if the X-ray films reveal the presence of an expanding lesion—this because I know of no method of judging in which case delay is safe and in which case it is not.

Technique.

The technique involved in ventricular puncture is simple; it consists primarily in the introduction of burr holes into the skull, and secondarily in the insertion of the brain needle into the lateral ventricle. There are three sites at which the procedure can be carried out with ease and safety. The ventricles may also be tapped from other positions; this is sometimes necessary during a craniotomy, but there is a greater danger of causing injury to some important structure, unless the surgeon has a clear picture of the anatomy involved. The usual sites for ventricular puncture are the following:

1. Frontal. A burr hole is made at a point in the skull about four inches above the nasion (bridge of the nose), and one and a half inches lateral to the mid-line. The burr hole may be placed a little further back if necessary to keep the incision within the hair line.

2. Occipito-parietal. This point lies one-third of the distance forwards from the inion (external occipital protuberance) to the nasion, and one and a half inches lateral to the mid-line.

3. Occipital. The opening is made at a point two inches above the inion and two inches lateral to the mid-line.

The burr holes may be made on both sides or on one side only, according to the circumstances in which the operation is performed. I have been accustomed to use the occipito-parietal approach, because I was used to it, and because I found it easier to hit the ventricles from this point. More recently I have been converted to the frontal approach, and this has certain advantages. In the majority of cases expanding lesions occur in the anterior half of the cerebrum, and quite a large proportion are situated in the frontal and fronto-parietal regions. A needle inserted by the frontal approach may reveal the presence of a neoplasm or a cyst in this area and so obviate the necessity for preliminary ventriculography, thus saving much time and a certain amount of risk.

When the site of election is decided upon, burr holes are made through the bone in the usual manner; the dura is opened and any underlying cortical vessels are coagulated with the electro-cautery; a nick is then made through the pia-arachnoid with a small scalpel. The brain needle is then inserted towards the nearest part of the lateral ventricle, the direction of which varies with the site chosen for the burr holes. The following directional terms are used as if the patient were standing in the erect position.

When the frontal approach is used, the brain needle is inserted downwards and backwards towards the external auditory meatus, and slightly inwards towards the mid-line. When occipito-parietal burr holes are made, the needle is directed towards the patient's mouth, the point being tilted slightly towards the mid-line. Finally, when the occipital position is chosen, the needle is directed towards the patient's eyebrow with a slightly greater inward tilt than when the occipito-parietal approach is used. These directions apply, of course, to normally situated ventricles. When uniform dilatation of the ventricular system is present, as in cerebral atrophy or a posterior fossa expanding lesion, the chances of tapping the lateral ventricles at the first attempt are much greater. When a hemispherical expanding lesion is present the ipsilateral ventricle is constricted and displaced by the pressure of the lesion, and in such cases it is usually difficult and frequently impossible to tap the ventricle on that side. The contralateral ventricle is usually dilated and consequently is much easier to enter with the brain needle. When the procedure is completed the wound is sutured securely in the usual manner. It should be explained to the patient that he must not raise his head for the next six hours or so after fluid has been removed, and for the next three to five days if a ventriculogram has been made. If he does not carry out these instructions he is very apt to develop a severe headache, which may persist for many days.

Cisternal Puncture.

Cisternal puncture is a slightly more difficult and a far more hazardous procedure than either of the preceding two. Because of the associated risks, and because I am able to obtain all the information I need by one or other of the preceding methods, I have long since ceased doing it. The primary danger, and one that has to be faced in every case, is an anatomical one. When the point of the needle passes through the *foramen magnum* and pierces the arachnoid covering the basal cistern, the distance between the needle point and the *medulla oblongata* is very small. If the direction of the needle is not perfect this small margin of safety is further reduced. This danger can be minimized by exercising great care while inserting the needle; but the second danger, although much less common, always remains an unknown quantity. It concerns the presence of abnormal blood vessels just inside the *foramen magnum* and lying in the path of the needle. I have seen this vascular anomaly in two cases while performing a suboccipital craniotomy, and in one of these the anomaly consisted of a large aneurysmal varix. Had a cisternal puncture been performed on either of these two patients, the abnormal blood vessels would almost certainly have been ruptured, and it is extremely doubtful whether a craniotomy could have been performed in time to prevent the resulting hæmorrhage from proving fatal. I have discussed this feature with my colleagues, and apparently it is not sufficiently rare to make one feel quite safe. If cisternal puncture were the only method available for diagnostic or therapeutic purposes, one would be forced to risk the presence of abnormal blood vessels. I have, however, encountered no case in which all the necessary information could not be obtained by lumbar or ventricular puncture, and as long as these two routes are available, I do not feel justified in attempting to use the more difficult and hazardous cisternal approach.

Cisternal puncture has been, and still is, used for various reasons. The main purpose for its present-day use is the injection of lipiodol to outline the upper limits of an intraspinal expanding lesion. I do not feel that this is a real indication, as it is immaterial whether the upper or lower limits of such a lesion are visualized, and the latter can be demonstrated with lipiodol injected from

below by the lumbar route. It is sometimes used for the injection of serum or some similar substance, but the lumbar and ventricular routes are just as effective and much safer. Some have used this route, combined with lumbar puncture, to detect the presence of a partial or complete block in the spinal subarachnoid space. In my experience a more accurate localization of an intraspinal expanding lesion can be made from the clinical signs presented and by a graduated lumbar manometric test. A rough idea can be obtained by the latter as to whether the lesion is in the cervical, dorsal or lumbar region, whereas combined cisternal and lumbar puncture merely reveals evidence of a block somewhere between the two needles. Occasionally cisternal puncture is performed to relieve intracranial tension in cases in which the spinal subarachnoid spaces are blocked, as by exudate in meningitis. When this occurs, however, the patient's chances of recovery are practically nil, and in such cases I should prefer to fix a Frazier needle into one lateral ventricle and institute continuous drainage.

Technique.

If it is necessary to perform a cisternal puncture, the surgeon must be sure that the patient's head lies in the correct position. The patient is placed in the left lateral recumbent position for a right-handed surgeon, and in the right lateral position if the surgeon is left-handed. The head is slightly flexed and rests on a pillow, so that the mid-line of the head and the cervical spines lie in the same plane. The skin of the back of the neck is shaved, washed and carefully sterilized. A small area of skin is anæsthetized with a 2% solution of "Novocain" just above the spine of the atlas. An ordinary lumbar puncture needle with a short bevel, preferably gauge 18, is used. The shaft of the needle must be carefully measured to the nearest millimetre before use. It is inserted through the anæsthetized skin at a point in the mid-line and just above the spine of the atlas. It is directed upwards behind the *foramen magnum* until it strikes the base of the occipital bone. It is then withdrawn slightly and the point redirected one or two millimetres forwards. This procedure is repeated until the point just slips over the posterior margin of the *foramen magnum*. The needle is then inserted further until it pierces the arachnoid covering the *cisterna magna*, when cerebro-spinal fluid will escape. The distance from the skin to the *cisterna magna* is usually four to six centimetres and rarely up to 7·5 centimetres. It is unwise to insert the needle beyond the 7·5 centimetre mark, and when the point of the needle is approaching the usual cisternal level the surgeon should check the length of needle buried and withdraw the stilet every one or two millimetres. Great care must be taken that the patient does not move his head while the needle is in place. From this point onwards, the remainder of the procedure is the same as for lumbar puncture.

Conclusion.

In this paper the indications for and the dangers associated with lumbar, ventricular and cisternal punctures have been discussed. Lumbar puncture has been dealt with in the greatest detail, as it is essential to the diagnosis and treatment of many neurological conditions, and it is well within the scope of every practitioner; on the other hand, the indications for ventricular and cisternal puncture are more limited, and the former at least is usually carried out only by those interested in neurological surgery.

Lumbar puncture is performed in practically every neurological condition, for diagnosis, for treatment, or as a method of checking the spinal fluid, to follow the course of the disease. In view of the frequency with which it must be carried out, it is essential that it be done in a way that is easiest for the operator and least distressing to the patient. If the operator makes sure that the patient's position is perfect, he will experience very little difficulty in tapping the lumbar subarachnoid space at the first attempt. If fluid is not obtained, he must not regard it as a "dry tap"—there is no such thing; some fluid is always present in the subarachnoid space, even below a complete spinal block. The only reason that fluid is not found is a lesion existing at the level of the puncture; as I made this discovery on one occasion when the point of the needle entered an intraspinal neoplasm. Again, if the patient's position is correct, and if a small gauge needle is used, the patient will rarely experience any discomfort either during or after the procedure. Above all, the needle should be inserted accurately and very slowly; it must not be jabbed in, withdrawn and jabbed in again until fluid is obtained. One attempt, if carefully planned, should be sufficient, and the more often the needle is inserted, the more likely the patient is to have backache for the next few days; he will not feel kindly towards the operator if this occurs.

The greatest danger associated with lumbar puncture lies in the withdrawal of fluid in cases of high intracranial pressure. If no focal intracranial expanding lesion is present it can be performed with relative safety; but if such a lesion is suspected and the pressure is high, not more than one cubic centimetre of fluid should be removed (including the fluid that is in the manometer). This is sent to the laboratory for a cell count, and for estimation of the globulin and total protein contents. The careless and rapid withdrawal of large amounts of fluid in these cases is likely to result in the death of the patient. In cases of emergency, large quantities of fluid may be withdrawn and the pressure reduced to normal over a period of an hour or more by the method described earlier; the associated danger is thus minimized, but even this method should be regarded as carrying a certain amount of risk.

The technique of and the most suitable sites for ventricular puncture have been described. This procedure is used only when the withdrawal of fluid or the injection of air by the lumbar route is either impracticable or too dangerous. It should not be carried out except in cases of emergency, unless the operator has an accurate knowledge of the minute anatomy of the parts involved. A brain needle should never be inserted through the speech, motor or visual cortex; but there is little danger if the sites described earlier are used. The main dangers are those associated with infection, hæmorrhage and brain damage, each of which can be minimized with care, and with brain shift, which cannot be avoided; but fortunately ill effects from this cause are rare.

I can find no essential use for cisternal puncture, as all necessary information can be gathered by puncture in the lumbar and ventricular routes. The small anatomical margin of safety and the possible presence of abnormal blood vessels are quite sufficient to make me advise against the use of such a hazardous procedure. Each of the other two procedures has its own special indications and associated dangers; but if they are performed wisely and well, they can be carried out easily, safely and painlessly. If they are done unwisely and without sufficient care, they can be extremely difficult, very dangerous and most distressing.

References.

(1) W. L. Reid and W. V. Cone: "The Mechanism of Fixed Dilatation of the Pupil Resulting from Ipsilateral Cerebral Compression", *The Journal of the American Medical Association*, Volume CXII, 1939, page 2030.
(2) W. L. Reid: "Cerebral Herniation through the Incisura Tentorii", *Surgery*, Volume VIII, 1940, page 756.
(3) H. H. Merritt and F. Fremont-Smith: "The Cerebrospinal Fluid", 1937, page 166.

FRACTURES OF THE MALAR BONE.

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IF any excuse for this paper was needed, it could be read on the physiognomies of an all too numerous company of citizens and soldiers, their faces asymmetrically distorted as a result of the inefficient diagnosis and treatment of fractures of the malar bone.

The malar is one of the commonest bones in the body to sustain injury. Its displacement is too often missed, either because of the hæmatoma or swelling of the cheek tissues covering it, or because sole attention is given to associated and maybe graver injuries. This is no excuse for the "missed malar". If every injury in the region of the upper part of the cheek was presumed to hide a fractured cheek bone until proved otherwise, many more malar bones would be replaced within the first fortnight after injury (the time interval during which reposition is simple), and much disfigurement and dysfunction would be saved.

The body of the malar is of stout, compact bone anchored at its three points of articulation by relatively flimsy struts. Occupying a prominent position on the cheek, it is exposed to violence from many directions. Resulting fractures usually occur at the three articulations, the body of the bone itself being seldom fractured.

Eighty *per centum* of the cases treated by this unit are "three point" fractures of this type, and the bone is driven *en masse* through the thin wall of the antral cavity in varying degrees. We have noted that in most subjects presenting this injury the antral walls are thinner and more radiotranslucent than the average.

Diagnostic Features.

Periorbital hæmatoma and epistaxis—a black eye and a bleeding nose—are common presenting signs. When patients are seen soon after injury, swelling of soft tissues may mask the bone deformity; but palpation of the infra-orbital margin usually reveals a "step-down" deformity at the junction of its inner and middle thirds. An outward bowing of the zygomatic arch may also be felt.

Paræsthesia or anæsthesia follows damage to the infra-orbital nerve and results in interference with sensation over the side of the nose, the inner half of the upper lip and the six anterior teeth.

Mastication may be interfered with as a result of the anæsthesia of the six anterior teeth, also perhaps from the impinging of the coronoid process of the mandible on the displaced malar bone.

Diplopia is elicited in 50% of the more severe cases and is complained of when the patient looks down and out to the side of the lesion. It probably results from the fact that the origin of the inferior oblique muscle of the eyeball is displaced with the bone. It is a *sine qua non* that no malar bone can be considered as satisfactorily replaced unless double vision is corrected after reposition. If this diplopia is not corrected it may go on to amblyopia.

In long-standing, unreduced fractures, after the swelling has subsided, the local deformity becomes obvious—often only too obvious—and in addition to the above-mentioned symptoms, epiphora has been encountered, owing to the spilling over of the conjunctival watershed onto the unsupported cheek.

X-ray appearances are characteristic when a 30° occipito-mental view is taken; the antrum on the affected side is usually opaque, as it is filled with blood clot. A break in the infraorbital margin or in the zygomatic arch is easily picked up. Every subject suspected of having a fracture in this region should, therefore, be radiologically examined, in order to reveal the direction of the fracture lines, and to ascertain whether there is any involvement of the antral sinus or any associated fractures of other facial bones. Similarly, all subjects are radiologically examined again after elevation of the bone to make sure that the reposition is efficient.

Treatment.

Early Cases.

In the subject seen within a few days after injury, perfect replacement of the bone can be guaranteed. If the fracture is untreated, however, union in a vicious position takes place rapidly as in all fractures of facial bones (owing to the exuberant blood supply in the area), so that in the unsuspected and neglected case of malunion replacement becomes a most difficult problem. Hence the plea for early diagnosis and treatment, for three weeks after injury replacement by the manipulation described is nearly always ineffective.

Many ways of replacing the bone have been described, from grasping the bone through the substance of the cheek with tenaculum forceps to transantral and trans-buccal manipulative procedures. A method of elevation by means of two hooks introduced through tenotomy wounds is widely used with varying degrees of success. The technique described by Gillies is, however, superior to all these, in that greater control is obtained of the bone, and replacement from any position can be obtained efficiently and with certainty, no scars being left on the face.

The Gillies technique consists in making an incision about one inch in length just within the hair line of the temporal portion of the scalp. The exact site of incision varies according to the variety of fracture to be elevated, a common measurement being one and a half inches above and half an inch anterior to the external auditory meatus. The wound is opened by catspaw retractors, and blunt dissection is carried down till the white sheen of the temporal fascia is observed. The temporal fascia is incised in the line of the skin incision. A plane is then opened up deep to the temporal fascia and zygomatic arch. An elevator of the Kilner or Bristow type is inserted under the zygomatic arch behind the tuberosity of the maxilla and manipulated till it engages beneath the depressed bone. Disimpaction is effected by levering upwards, outwards and forwards, one hand being placed over the area externally to feel the change in position.

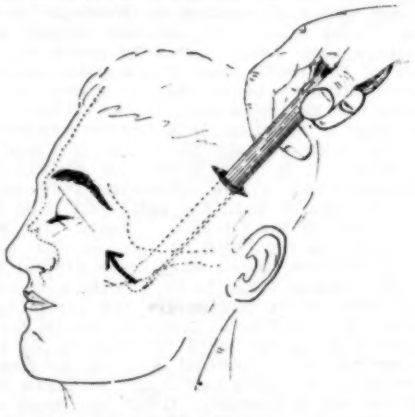

Figure I.
Showing the direction which the elevator takes between the temporal fascia and temporal muscle in the Gillies method of malar disimpaction.

Reposition is accompanied by an audible and palpable crack or crunch as the displaced bone is forced back into its normal position. The hand over the region immediately appreciates the change in position, the zygomatic bow is restored to its normal alignment and the notch in the infraorbital margin disappears. It is important to be certain that the corrected position is maintained after the elevator is withdrawn. If the skin suturing is performed carefully there is no need for any dressing.

Anæsthesia.—For the uncomplicated recent depressed fracture of the malar bone, "Penothal" is the anæsthetic agent of choice. In fact, prior to the advent of the barbiturates for intravenous use, anæsthesia was such a problem that it may even have been one of the causes of the neglected malar fracture. Of late we have at this unit been making the skin incision and performing the subfascial dissection under local anæsthesia, giving "Pentothal" into the vein immediately prior to disimpaction.

The Antral Approach.—Rarely the bone cannot be "sat up" on its old site, owing to the gross comminution of the maxilla or because of delay in treatment beyond the

optimum time for operation. When the reduced position is not maintained, an opening of the Caldwell-Luc type is made into the antrum, and after elevation of the malar bone and evacuation of the blood clot, the antral cavity is plugged hard with flavine-paraffin gauze. The plugging should be removed after seven days, by which time the malar bone will have "stuck" sufficiently to remain put. If the plugging is left longer than a week, the gauze will cause chronic irritation of the antral lining, with a tendency to the formation of a persistant oro-antral fistula. In our experience, in about 10% of cases of recent malar fractures antral plugging is required in order to retain the malar bone in its corrected position.

Later Cases.

The treatment of fractures seen late is always a problem. When union is not firm, a combination of the Gillies method combined with antral packing may be effective; but recurrence of the deformity is likely. Fractures seen after firm bony union has occurred may be treated by osteotomy performed at the old fracture sites, followed by reduction and retention by wiring. This is a long, difficult procedure and should be performed only in a plastic surgery unit. More usually, methods of camouflage are resorted to. Bone grafts, fat grafts, temporal muscle flaps—all have been used successfully to mask the deformity. These procedures are indicated for cosmetic reasons and aim at restoring the natural contour of the cheek bone area without reducing the displaced bone.

When the indication for treatment is persistent diplopia, bone or cartilage grafts fashioned to fit over and build up the infraorbital plate are used in this unit. Such major procedures, however, are quite unnecessary when the fracture is recognized and treated soon after the injury; its reduction is then a minor affair, and its success can be guaranteed.

Acknowledgement.

This short communication is based on the teaching of the officer in charge of this unit, Major B. K. Rank, Australian Army Medical Corps.

Reviews.

NUTRITION AND CHEMICAL GROWTH IN CHILDHOOD.

For the past ten years a group of workers under the direction of Dr. Icie G. Macy has been investigating the physiology of normal children between the ages of four and twelve years. The results of this research are now to be made available in two volumes, of which the one here reviewed is the first, and the second is promised for 1943.

In this volume emphasis has been placed upon the details of the technique used and the results obtained by the study of the intake and excretion of eighteen chemical substances by normal children. The purpose of this intensive programme has been to obtain sufficient knowledge of the normal child to establish biochemical, hæmatological and other norms so that the clinician can the better interpret the findings from the child who is ill.

Every phase of the work bears the hall-mark of attention to detail, as, for example, early in the book the author has given a definition of the terms used so that their exact meaning in the text may be interpreted aright.

As the work is associated with growth, a large portion of the book is devoted to food and the chemical aspects of digestion and excretion. The investigations included metabolism experiments for most of the elements commonly investigated, that is, calcium, phosphorus, magnesium and iron.

The chapter on blood is comprehensive and includes observations on lipids, proteins and the electrolytes as well as on the cellular elements. At the end of the chapter a comparison is drawn between the observations on normal blood and the blood in nutritional anæmia in childhood. About two-fifths of the book is devoted to a detailed description of the chemical and other methods used in the investigation.

Whilst the author has used this method to record the results of ten years' research work at the Research Laboratory of the Children's Fund of Michigan, the opportunity has also been taken to round off the results by frequent reference to the work of others in this field of investigation. On that account this volume is to a degree a text-book on some aspects of the physiology of children.

This is essentially a book for the specialist. The pædiatrician will find much to interest him from the range in the blood pictures obtained from normal children to the effects of various foods upon the emptying time of the stomach. The expert in mothercraft and infant welfare will obtain satisfaction to learn that the past diet of an infant undoubtedly affects the body's demand for calcium at any given time. The biochemist will find summarized methods for all the common and many of the unusual biochemical tests he is asked to do. Those practitioners who acknowledge the possible effects on the child of chronic constipation will find gratification in the section which shows the transfer of ethereal sulphate from the fæces to the urine in constipation. Finally, no experimentalist should commence a survey of any kind into the physiology and biochemistry of infants without first consulting this book.

The second volume, "Interpretation", which will emphasize the practical value of the facts set out in this volume, promises to be of even greater interest.

[1] "Nutrition and Chemical Growth in Childhood", Volume I, Evaluation, by Icie G. Macy, Ph.D., with a foreword by Hugo A. Freund, M.D.; 1942. Springfield: Charles C. Thomas. London: Baillière, Tindall and Cox. Royal 8vo, pp. 462, with 66 illustrations.

NEW PATHS IN GENETICS.

Any work by J. B. S. Haldane is sure to be stimulating and "New Paths in Genetics" is no exception.[1] Its very initiation is interesting, for it represents a series of lectures given in the University of Groningen, Holland, in March, 1940—that is to say, in that curious period when Germany was making ready for an invasion.

Haldane is one of the world's greatest authorities on genetics. In these lectures he brings forward the latest direction of thought in genetics as related to medicine, biological chemistry, embryology and other branches of biology in the widest sense.

The volume requires at least a little knowledge of the fundamentals of genetics, but that is now definitely recognized as part of any really modern biological course, and in Australia we would now expect it of the medical student.

Most general works available on heredity and genetics treat the subject in a rather formal manner. The machinery of genetics is discussed in varying degrees of detail according to the nature of the treatise, elementary or otherwise. The scientist, however, who is interested in some aspect of biology, yet not a specialist in genetics, will be asking for some story of the applications of genetics. He will find a most excellent summary of a number of them in the present volume. And since they are largely culled from Haldane's own work, they bear the mark of authority one expects from him. The book is an excellent plea for further study of a subject—genetics—which has far too often been regarded as an academic decoration to the work of plant and animal breeding.

The book has many interrelationships with medicine, apart from the chapter definitely set aside for human genetics. Thus in a brilliant exposition on certain connexions between biological chemistry and genetics, illustrated by the heredity of some diseases of metabolism, reference is made to phenylketonuria, to alcaptonuria and in particular to congenital photosensitivities such as hæmatoporphyria and *xeroderma pigmentosum*.

The organic chemist will be intrigued by the relationship between his subject and that of the geneticist as illustrated in the evolution and heredity of flower pigments, such as the anthocyanins. The zoologist and the medical student are brought together in the study of the genetics of embryological development.

The two final chapters in the book bear the titles "The Genetics of Some Human Abnormalities" and "The Formal Genetics of Man". Haldane almost apologizes for returning to formal genetics in his last two chapters "because the

[1] "New Paths in Genetics", by J. B. S. Haldane, F.R.S.; 1941. London: George Allen and Unwin Limited. Demy 8vo, pp. 206. Price: 7s. 6d. net.

formal genetics of man require special methods, and for this reason their development has lagged behind that of plants and animals". They are, however, surprisingly full of "meat", and even if the few references to the mathematical side are somewhat tough for a book of this kind, they can at least be treated lightly. The volume can certainly be recommended for the senior student and the practitioner who is interested in modern trends in the study of heredity and breeding.

AN ORGANISM AS A SINGLE CHEMICAL MOLECULE.

ONE of the most fascinating discoveries in the science covering the mechanism of heredity is that of the part played by mysterious and minute units—termed genes—in the chromosomes of the cell nucleus. The term "mysterious" is used, since, whilst their localization has been one of the great biological discoveries of the last twenty-five years, their exact nature is still unknown.

It has been suggested that a gene may be a protein molecule, although one author has gone much further and suggests that the whole chromosome may be an entity comparable to a huge molecule. It is curious, however, that with the arrival of Haldane's work reviewed above there comes an essay claiming that any and every organism is one single chemical molecule[1] and putting this forward as a key to the problem of the causation of neoplasms. It is very difficult indeed to know what to say about a booklet of this kind (a second edition incidentally of the same work published in 1932 and apparently unaltered, except for a new introduction and an extension of the theory's application to neoplasms).

The writer of the introduction points out, it is true, that whilst most of us learned that molecules were very small (in our chemistry lessons of many years ago), there is evidence today that molecules of some of the plastics can be huge.

The author starts off with a well-worn subject—the existence of protoplasmic connexions between cells. From this he argues that the multicellular organism is not only one unit, but fundamentally unicellular. This, to say the least, is extending our well-known definitions of the living cell to impossible limits.

The book consists of only 23 pages. To review it properly would necessitate an elaborate discussion. In fact the thesis put forward embraces not only embryology and physiology, but psychology. "Pleasures in an organism (the fulfilments of its desires) are the fulfilments of tendencies in a molecule." The author has a conclusion which states that "the strength of the molecular theory lies in its simplicity". Unfortunately there is very little about the living organism which is simple so far as we know at present.

THE PROGRESS OF MEDICINE.

THE volume known as "Surveys and Abstracts" for 1941-1942, published in connexion with "The British Encyclopædia of Medical Practice", has made its appearance.[2] The volume for 1940 was noticed in these pages and was recommended to medical practitioners as a reliable volume to which they could refer for information on recent work in the many branches of medicine. The present volume is produced along the same lines as its predecessor. It has fewer pages than before, but the material on each page has been increased and in this way a great deal of the apparent deficiency in size has been made good.

The book, as before, is issued under the general editorship of Sir Humphry Rolleston and is divided into three parts. The first part consists of critical surveys. The second part deals with drugs, and the third comprises abstracts from current medical literature. The high standard of the volume has been maintained, and the general editor, in his introduction, acknowledges indebtedness to the publishing editor, Dr. H. Hay Scott, whose name should be mentioned in any review of the work.

The first part includes three opening articles devoted respectively to general medicine, general surgery and obstetrics and gynæcology. These come from the pens of Professor W. E. Hume, Professor Grey Turner and Professor James Young. Of these three the article by Professor Young will probably be of most value to the clinician. The other articles in the first part, each by masters of its subject, include discussions on alimentary tract diseases, aviation medicine, blood transfusion in relation to the treatment of shock, cardio-vascular diseases, children's diseases, ear, nose and throat diseases, acute infections, lung and pleura diseases, mental diseases, nervous diseases, tropical medicine and venereal diseases.

In Part II Professor W. J. Dilling deals with recent developments in drug therapy. The chief subjects which he discusses are drug shortage in the war, the sulphonamides and the vitamins.

Part III, as already stated, contains short abstracts from the literature. The subjects are arranged alphabetically and are most comprehensive. Special mention may perhaps be made of the articles abstracted under the headings of pharmacology, sex hormones, vitamins, surgical kidney disease, adrenal gland diseases, and burns and scalds.

We wish this book the success which the former two volumes have enjoyed.

HALE-WHITE'S MATERIA MEDICA.

WITH the rapid increase in the number of newer drugs in common use, the advent of a reliable and comprehensive reference dealing in small compass with the essential features of their pharmacology, therapeutic application and toxicology is welcome. Such a work is Hale-White's Materia Medica, which, under the editorship of A. H. Douthwaite, now appears in its twenty-fifth edition.[1]

The many additions to the British Pharmacopœia which have appeared in Addenda II-V (issued since the previous edition of this book) have been incorporated, and the difficulties involved in the adoption of new and as yet unfamiliar official names for many erstwhile proprietary drugs are solved by quoting the trade names with the official names and indexing them independently.

The tendency to discard so many "ready-made" plant products in favour of specifically "tailored" chemical products is reflected in the more rigorous pruning of sections dealing with pharmacognosy and in the many reclassifications and new monographs relating to synthetic drugs.

The sulphonamides, clearly tabulated and graphically formulated, make an interesting chapter, particularly in relation to their dosage and to the general principles underlying their therapeutic use. The recommendation that the term "Sulphonamide" be used as a generic name for the group instead of the frequently used term "Sulphanilamide" is sound.

The sections dealing with hormones, vitamins, vaccines and sera carry a fund of information concisely but lucidly expressed.

Among the many useful monographs dealing with drugs which are increasing in therapeutic currency, information relating to the following may be cited: Diphenan, Phenothiazine and Tetrachlorethylene in their Specific Anthelmintic Applications; Pamoquin and Mepacrine in Complementing Quinine Therapy; Gold Salts and their Provocative Reactions; Barbiturates in their many Guises and Modifications; The Alkaloids of Ergot and their Comparative Therapy; Nucleic Acid and the Nucleotides.

With this modernizing of the book, it seems a pity that the compound prescriptions, quoted and detailed in the section on prescribing, should still wear the beards of an older generation and that examples of the simple prescription containing its single basic drug with, if needed, an appropriate vehicle, should be omitted altogether. The therapeutic notes complementing the pharmacological details in each monograph are practical and to the point, while the brief supplementary notes on toxicology make a useful addition.

The book may be recommended with confidence as a convenient and ready reference for both student and practitioner.

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[1] "A Theory that any Organism is a Single Chemical Molecule put forward as the Key to the Problem of the Causation of Neoplasms", by T. L. Cleave, M.R.C.P. (London), with an Introduction by C. P. Stewart, M.Sc. (Dunelm), Ph.D. (Edinburgh); 1941. Bristol: John Wright and Sons Limited. Crown 4to, pp. 24.

[2] "The British Encyclopædia of Medical Practice, including Medicine, Surgery, Obstetrics, Gynæcology and other Special Subjects, Surveys and Abstracts, 1941-2", under the general editorship of Sir Humphry Rolleston, Bt., G.C.V.O., K.C.B., M.D., D.Sc., D.C.L., LL.D.; 1942. London: Butterworth and Company (Publishers), Limited. Super royal 8vo, pp. 487, with illustrations. Price: 42s. (Australian).

[1] "Materia Medica, Pharmacy, Pharmacology and Therapeutics", by William Hale-White, K.B.E., M.D., LL.D.; Twenty-Fifth Edition; 1942. London: J. and A. Churchill, Limited. 7¼" × 4¾", pp. 511. Price: 14s.

The Medical Journal of Australia

SATURDAY, APRIL 10, 1943.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

"MEDICAL PLANNING RESEARCH": ANOTHER INTERIM REPORT FROM ENGLAND.

THE publication of the Draft Interim Report of the Medical Planning Commission in the *British Medical Journal* of June 20, 1942, gave medical men and women in Great Britain much food for thought, and its republication in this journal on March 6, 1943, after the original had failed to reach this country, gave Australian practitioners an idea of the way in which their *confrères* in the Old Country were facing the medical problems of the future. It will be recalled that the Medical Planning Commission was established by the British Medical Association with the cooperation of the Royal Colleges and the Royal Scottish Corporations. It consisted of 73 members appointed by various bodies, but these members took part in the Commission as individuals; the bodies appointing the Commission were in no way committed by the report. In our issue of March 6 Australian medical practitioners were urged to study the report, and it must be presumed that those interested in the subject have done so—incidentally it should be remarked that there can be few, if any, practitioners in this country for whom the Medical Planning Commission's report would not hold an interest. But this is not all. Another arresting document, prepared from a somewhat different point of view, which demands attention is the interim report of "Medical Planning Research". This document, which was published as a supplement to *The Lancet* of November 21, 1942, has been compiled from over 200 drafts prepared by medical practitioners under forty-five years of age—"doctors qualified less than 21 years, or others connected with the health services who are not over 45". There is naturally a great deal to be said for such an approach. It is the "under 45's" who will have to spend many years under any new system that is evolved, who will therefore have most to give to such a system, and who will suffer most by reason of any defects included in it. There is nothing to show that all the 73 persons appointed to the Medical Planning Commission belonged to the older generation of doctors, and any suggestion that with the access of years they had lost sight of the abilities of the younger generation or of what was due to its members would be more than hard to prove. As a matter of fact, the two reports have a great deal in common, and each has its distinctive features. Since the report of "Medical Planning Research" is not available to all our readers, it is fitting its chief features should be set out in this place.

"Medical Planning Research" is not a body sponsored by *The Lancet*. This is stated in a leading article in *The Lancet*. Neither is the report a counterblast to the Medical Planning Commission's report. Most people will probably regard it as complementary to the latter document. The report is thrown open for criticism, not only by members of "Medical Planning Research", but by anyone else, regardless of age. The final report will not be prepared until at least six months have elapsed since the circulation of the interim report. At the start of the investigations two groups of problems "connected with, but not strictly a part of, medical planning" were recognized. The first is connected with the fact that medical organization is very largely determined by the social pattern of the society in which it exists. The second group of problems are those of environmental planning for health and happiness. The truth of the matter is that medical planning without regard to these problems is futile. This has been emphasized in these columns on more than one occasion and in connexion with several discussions. Unfortunately, even at this date these aspects are not given nearly enough prominence; what may be regarded as the *milieu* of medical practice is sometimes mentioned, but it is not always regarded, in the words of "Medical Planning Research", as the "framework inside which the new medical services will have to be built". Many persons, particularly the politically minded, seem to think that what is fitted in will make good all kinds of defects in the framework. Since, then, we must be concerned with the changes likely to take place in society, it is only a step further to take into account those changes "which ought to occur if maximum health of mind and body is to be obtained". In the Medical Planning Research interim report both sets of problems are studied concurrently from five different aspects: population, productive capacity, poverty, purchasing power, physical planning of town and country. There is no need, nor indeed is it possible in the available space, to describe in any detail the arguments used in connexion with these several points. In regard to population it is stated that a policy must be devised which will make children not only an economic asset rather than a liability to all social strata of the population, but also a social asset. A universal system of adequate family allowances and a system of free education with equal opportunities for all children are advocated. One of the conclusions of the discussion on productive capacity is that there is no need for a return to pre-war poverty, slumps or unemployment, if we are prepared to impose certain disciplines on ourselves. "By continuing to sacrifice some freedoms, which we have willingly sacrificed in war, we can gain greater freedoms than we possessed before." It is a common saying that the British peoples prefer evolution to revolution, and it is not unreasonable to suggest that the willing sacrifice in the post-war period

of certain freedoms lost during the war will further a sensible evolution towards an inevitable end. In the sections on poverty, purchasing power and the distribution of population a scheme for social security is mentioned; control of prices, rationing and so on are discussed; housing is dealt with shortly under several headings. Much more emphasis should be laid on the value of work. The evils of overwork and fatigue are known, but idleness, the inability to find work, is worse. Most people will agree with the statement in the report that there is no excuse for a system which allows anyone to be unable to find work. There is also something to be said for the suggestion that refusal to work should be regarded as a crime against society, especially if such an attitude was applied to every social stratum. The provision of work for everyone will solve most of the post-war troubles. In one of the sections the statement is made that a planned health service is an "A1 priority". "Priority", a word that has come into great prominence, is to many a "blessed" word; but we know what it means when we read that "the best that the medical and allied professions can provide must be available for everybody", and that provided this does not encroach on other A1 priorities, there is no need to count the cost.

Part II of the report has the heading "Paying For It". After a sound analysis of the present-day methods of payment for health services, payment in the future is discussed. Among the characteristics of the "ideal method" of payment are the following: (i) Members of the public should have the feeling that they are themselves paying for the services they receive; and they should have a measure of freedom in choosing who shall give them these services. (ii) Doctors should retain, as far as possible, the feeling of dependence on their own efforts, and of independence in their relationship with the State. (iii) All classes should be able to pay for services when they are well, and should be freed from the burden of payment during and after illness. (iv) Payments made during times of health should cover all services needed at any time. (v) There should be no question of persons wishing to pay private fees at the time of illness receiving preferential treatment over patients being treated on an insurance basis. It is suggested that every person in receipt of any form of income should compulsorily pay a single social security insurance contribution and that this should entitle him to treatment during illness, sickness benefit, unemployment benefit, old-age pension, family allowances *et cetera*. The amount required for the scheme and not provided by payments from individuals is to be paid from consolidated revenue.

Part III, entitled "Running the Show", is a discussion on administration; it will interest especially those members of Australian Branches of the British Medical Association who protested against the proposal that administrators in schemes for a salaried medical service should receive salaries much larger than those of specialists. We read first of all that the scientific study of administration is in its infancy, and, again, that all new administrative proposals should be treated as scientific experiments. The proposals discussed in the report are regarded as offering no exception to this statement. Any large organization is subject in internal structure to a series of mutually opposed forces and it is on the nice balance of these that efficiency depends. Foremost in these opposed forces is the pull between the technician and the administrator. In certain health services technicians remain ultimately subservient to pure administrators. We read that the best technicians have often refused to serve in such organizations and that those who have served have become frustrated and disillusioned. To find a solution to this problem a study of parallelism and hierarchy is proposed. Parallel organizations are those in which authority, or a great deal of it, is divided among persons of equal rank. On the other hand, hierarchical organizations are those in which authority is concentrated in one person, and below this person are others in a descending scale. In practice neither type exists in a pure form. Broadly speaking, the more automatic a job, the greater must be the degree of hierarchy. Most of the practice of medicine consists in the application of individual judgement to the individual patient. As long as this is so, parallelism as a dominant feature is regarded in this report as being desirable. We cannot imagine that serious opposition would be made to this general statement. The statement is followed by another—that while parallelism among practitioners should be the rule, it does not follow that it is the final word in the medical administrative set-up. After an enumeration and discussion on the inherent advantages and disadvantages of both types of organization, it is stated that the hierarchical system limits the opportunities of advancement of the clinician and confines prizes to the administrator. Since it is on technical rather than on administrative skill that the treatment of the patient ultimately depends, technical skill should, it is concluded, receive at least equal recompense with administrative ability. The reasonable suggestion is made that the initiative of the private business concern as contrasted with the government department may be due, not to the inherent virtue of competition and private enterprise, but rather to the existence of a controlling board of co-equal directors some of whom are technical experts. The reader is not surprised to find the recommendation that in a national medical service parallelism should be the dominant feature of the technical side and, further, that in environmental medicine and in pure administration, though a greater degree of hierarchy is probably inevitable, it should be kept to a minimum. In regard to salaries, a steady drawing together of maximum and minimum salaries with parallelism on each level is recommended. Where there are a number of heads of departments, they should be equal in salary and status. If there is one executive head of a group of directors, he should be *primus inter pares*; his salary should not differ from that of his colleagues, and the reward for his additional responsibility should be his additional authority. "The ranges on both administrative and technical sides should be the same." Only an outline of the discussion on administration has been given; there are many other points which should be studied in the report itself.

The fourth and last part of this report is "The Doctor and His Work". Doctors are said to fall into three groups—home doctors, specialists or consultants, social doctors or medical officers of health. Other functions such as teaching, research and administration are carried out by doctors who continue to be, or have been, members of the three primary groups. To give an adequate idea of this part of the report it would be necessary to reproduce most of it. We must therefore be content to deal mainly with

the home or family doctor. Among the functions of the home doctor from the patient's point of view is the statement that he must be the doctor of the patient's choice. From the home doctor's point of view it is stated that unless he is working under the best conditions, he will not be able to give his patients the best service. The conditions regarded as essential are as follows:

1. He must not have to "buy his way in" to a practice. His early years in practice must not be crippled by the heavy debt which purchase so often involves.
2. He must be a free man—free to throw up his practice if he wishes so to do; free to refuse to accept a patient (though having once accepted, he must carry out his obligations); free to increase his practice by his own efforts up to a point where it is generally judged that efficiency is reduced; and free from undue bureaucratic interference, whether medical or lay. If he fails to carry out his statutory obligations, he must be subject to statutory discipline, and not the inroads of officialdom. Unless our doctors are free men, they will lack the sense of responsibility on which the doctor-patient relationship rests.
3. His remuneration must be adequate, from the onset of his career, and must bear a relation to the amount of work he does.
4. He must be adequately housed, and adequately equipped for his work.
5. By arrangement with his colleagues, he must have regular and adequate off duty times. He must have regular holidays.
6. Once every five years at least he must have a refresher course specially planned for his needs.
7. Within his general field, he must have opportunities for acquiring and utilizing special skills.
8. He must keep in contact with his colleagues, general and specialist, and for this there must be a physical focus. His primary focus will, in fact, be the health centre; his specialist focus will be his local polyclinic and hospital.
9. He must be adequately insured against sickness and provided for in old age.

The remuneration of the home doctor, it is suggested, will consist of three parts: (*a*) a basic salary with additions for special qualifications and length of service; (*b*) a capitation fee depending on the number of persons on his list; (*c*) fee for special clinics or other special work, and private fees for patients choosing to be outside the service.

The points of similarity in the ideas of "Medical Planning Research" and of the Medical Planning Commission will be clear to those who have studied both documents. Both reports provide much ground for discussion. Group practice or work at a "health centre" is common to both; it has also been advocated at the recent meeting of the Federal Council as one of the measures that may be adopted for the improvement of the present method of medical practice. It is a subject which calls for a special discussion on another occasion.

Current Comment.

THE PHYSIOLOGY OF FREE FALL.

MANY years before the invention of the aeroplane there had occurred a few alpine accidents in which life had been spared after a free fall over a precipice through the happy fortune of there being a sloping field of soft snow below. Those lucky persons who escaped reported that they had been fully conscious during the descent through the air. For some reason this statement of fact was not generally accepted, and during the last war the opinion was prevalent that a free fall for any considerable distance must cause such serious injury to the machinery of the body that complete unconsciousness supervenes before the victim strikes the earth. The question has now been settled in a manner which admits of no debate. A distinguished team from the North Western University Medical School, United States of America, obtained the cooperation of experienced parachutists and by most ingenious devices records of body happenings were made at all stages of the free fall and afterwards when the parachute opened.[1] The free falls were of varying extent from 8,400 feet to 29,300 feet and every precaution was naturally taken to have the material tested and to shield the body from extreme cold and lack of oxygen. The altitude and with the same appliance the respiratory movements were recorded automatically, but the subject had also on his right wrist a small altimeter which he could consult. The voice was broadcast by a microphone mounted in the oxygen mask and the same apparatus served to pick up the electric potentials from two chest leads and these were registered on a wax disk on the ground. This record on the wax disk could afterwards be transformed by a string galvanometer into an ordinary electrocardiogram—the first time heart potentials have been caught on the surface of the earth from a human being high overhead! An electrically driven motion picture camera was mounted on the harness on the hip opposite the transmitter. Electrically heated garments were worn by the subjects. Preliminary experiments in a pressure chamber showed that anæsthetized dogs could stand recompression corresponding to a fall of 700 miles per hour without any ill effects; if the recompression corresponded to a fall of 800 miles per hour or over there was a lowering of blood pressure due possibly to the rapid compression of the abdominal veins. It was found consistently that there is full consciousness during the descent, except in certain conditions where a very brief blackout occurred, but some uncertainty about the existence of this blackout is evident in the descriptions. One of the many interesting results is that the rate of fall depends on four factors: the density of the air or simply the altitude, the weight of the body, the position of the body, and finally the amount of spinning and tumbling. That the position of the body has a big say in determining the downward velocity was shown in all the six experiments. If the body is vertical the fall is most speedy, if horizontal the velocity is much slowed down; thus in one experiment the rate began as 199 miles per hour, then fell to 170, then rose to 229, then fell to 170, then rose to 222; a bad spin slowed the speed and the rate to 150 miles per hour. Heart rate and visual acuity were not affected, respiration was irregular and hearing was definitely diminished. The most comfortable attitude was a fall feet first at an angle of 75°, so that the earth below could be seen; the most uncomfortable was a rapid flat spin. A sense of falling apart from visual sensation is vaguely felt by the parachutist and is attributable to air pressure and slip stream. The authors support the contention of Lieutenant-Colonel H. G. Armstrong[2] that delayed opening of the parachute gives protection from a number of possible mishaps, some mechanical, some physiological and some military.

There is one curious omission in this investigation, and that is the absence of any reference to the action of altered gravity on the body. It is an elementary truism in physics that motion to affect gravity must be accelerated motion and the data given in this research indicate that this must have occurred frequently. Altered gravity can affect the labyrinth, but one of its main actions is on the arterioles of the splanchnic region which adjust their resistance to prevent gravity disturbing the distribution of blood at the various levels of the body; when the gravity pull alters frequently, nausea usually arises. The subjects in these experiments were trained to open their Eustachian tubes, but no mention is made of any subsequent ill effects due to nasal air and mucus being driven with considerable force into the sinuses and antra.

[1] A. J. Carlson, A. C. Ivy, L. R. Krasno and A. H. Andrews: "The Physiology of Free Fall through the Air: Delayed Parachute Jumps", *Quarterly Bulletin of the Northwest Medical School*, Volume XVI, 1942, page 254.
[2] "Principles and Practice of Aviation Medicine", 1939.

Abstracts from Medical Literature.

RADIOLOGY.

Faulty Movements of the Diaphragm as a Cause of Non-Obstructive Emphysema and Angina Pectoris.

WM. J. KERR (*Radiology*, August, 1942) discusses the syndrome of obesity, postural emphysema, orthostatic dyspnœa and *angina pectoris*. He stresses the importance of the loss of function of the diaphragm in the production of the symptoms. The use of an elastic supporting abdominal belt, acting as a means of artificial respiration, aids in the restoration of diaphragmatic function. Relief is prompt and spectacular.

The Meniscus Complex in the Radiological Diagnosis of Ulcerating Carcinoma of the Stomach.

B. R. KIRKLIN (*American Journal of Roentgenology*, April, 1942) stresses the value of the meniscus sign-complex in differentiating between benign and malignant ulceration of the stomach. Of the two factors in the complex, the tumefied border of the crater ranks first in importance, because without it the other factors would seldom exist, and because localized tumefaction of the gastric wall most often is attributable to carcinomatous neoplasia. The tumefaction varies in height and width; usually it is fairly uniform in these respects and encircles the crater completely, although in exceptions the tumefaction is irregular or limited to a portion of the rim of the ulcerated portion. The encircling ridge produces, under pressure, the transradiant halo round the crater when the lesion is on the posterior wall of the stomach. When the small, ulcerating carcinoma is on the lesser curvature, as most of these lesions are, the dependent portions of the ridge, if it is high or undermined, can be approximated by pressure so as to produce a transradiant arc that separates the barium in the crater from that in the stomach. Circumvallate tumefaction alone, however, is not pathognomic of ulcerating carcinoma, because gastric ulcers occasionally have swollen, slightly elevated borders and because callous ulcers, which are rather rare, are surrounded by a definite ridge of scar tissue. The second factor essential to the complex is the intraluminal situation of the crater, which is not sculptured in the gastric wall, or at least does not penetrate deeply into the wall, but has its deepest part on or near the mucosa. In other words, the entire lesion, including the crater, forms a bas-relief on the internal surface of stomach. At first thought it might seem difficult to determine whether the crater is in the wall or not, for the normal luminal contour is interrupted by the carcinoma. When the lesion is on the lesser curvature, the examiner is obliged to estimate what the normal profile of the lumen should be at that point. However, the question is not hard to decide from the relative positions of the shadows. When the carcinoma is on the posterior wall of the stomach, the crater is not visible at any tangential view as a prominence on the silhouette of the stomach. It is the intraluminal situation of the crater that distinguishes ulcerating carcinoma of the morphological variety from gastric ulcer, the crater of which has burrowed into the gastric wall. This criterion is indispensable in distinguishing callous ulcer from ulcerating carcinoma.

The Radiographic Appearance of the Bones in Cushing's Syndrome.

MARCY L. SUSSMAN AND BENJAMIN COPLEMAN (*Radiology*, September, 1942) report seven cases of Cushing's syndrome. They state that osteoporosis occurs frequently in Cushing's syndrome. In the skull, which is most often involved, the changes are irregularly distributed; they are seen most often in the frontal and parietal regions, and are irregularly triangular or ambœid in shape, or may resemble malignant metastases. The osteoporosis in the spine is uniform in degree and extent. The trabeculæ are decreased in number and density. The osteoporosis may vary, from case to case, from barely perceptible changes to those of such severity that compression fractures occur in the vertebral bodies. A peculiar change is described in the anterior ends of the lower ribs just lateral to the costochondral junction; the rib is expanded for a distance of an inch to about twice its normal size, and is homogeneously increased in density. These areas cannot be distinguished from callus either radiographically or histologically. By far the greatest number of cases of Cushing's syndrome reported in the literature have an associated basophilic pituitary adenoma. In all the authors' cases there was a tumour of the adrenal cortex, in some a benign adenoma, and in others a carcinoma.

Radiation Osteitis of the Ribs.

LESTER W. PAUL AND ERNST A. POHLE (*Radiology*, May, 1942) state that adult bone can be damaged by external irradiation with X rays, and that the sensitivity of bone to such radiation, applied in repeated series over a period of one or two years, is considerably greater than formerly believed. Following prophylactic irradiation of the chest after operation for carcinoma of the breast, changes were detectable in the underlying ribs. These changes consisted in pathological fracture or fractures, a variable amount of bone absorption at the edges of the fractures, and, generally, absence of reparative change over periods of up to three years. Usually the first X-ray evidence was that due to fracture, manifested by sharp change in alignment of the rib, with or without a fracture line being visible. In some an irregular transverse fissure or line of increased radiotranslucency first appeared. Usually after some months the rarefied zone became more pronounced, leading to well-defined defects in the rib shadow measuring up to a centimetre in length. Varying degrees of displacement were encountered. In four of the fifteen cases reported by the authors, the fractures healed after an interval of ten months. In ten no healing had occurred, even after observation up to three years. In the healed cases the bone at the site of the fracture became somewhat denser than normal. Generally at the time of fracture the bones appeared rarefied and sclerosis, if appearing at all, occurred late and was minimal in degree. A significant feature in all cases was the complete absence of symptoms referable to the fractures. They were found incidentally on routine radiological examination of the chest for metastases.

Patella Cubiti.

J. E. HABBE (*American Journal of Roentgenology*, October, 1942) reports four cases of *patella cubiti*, and discusses the probable ætiology. Each of the cases occurred as a unilateral abnormality. In one there was little doubt that trauma was the chief, if not the only, factor giving rise to the abnormality. The abnormality was found in an individual aged fifteen about five weeks after trauma; it was followed for a period of six months, or until a relatively mature state of *patella cubiti* had occurred. While it was possible in three of the four cases to show an ætiological relationship between childhood trauma and the formation of the patella, there was still some doubt as to trauma being the only ætiological factor in all cases. The similarity of the so-called "epiphysitis" in other regions, both from the standpoint of the normal growth of these secondary epiphyses and from the standpoint of their radiographic appearances in the presence of a growth disturbance, is emphasized. It may be stated with greater certainty that in true *patella cubiti* any trauma factor significant to the development of the condition must be one occurring in childhood or adolescence. Hence trauma occurring in an adult employee who shows such an abnormality is not a causative factor in its appearance, and the wrong diagnosis of "fracture" or "pathological fracture" should not be made.

PHYSICAL THERAPY.

The Cyclotron as a Medical Instrument.

F. J. HODGES (*Radiology*, October, 1942) relates the story of the development of the cyclotron and points out some of the achievements and potential applications in the field of medicine. During this century, through the researches of the Curie-Joliots in France, Rutherford and Chadwick in England, Bohr in Denmark, and Fermi in Italy, it became obvious that atomic nuclei could be violated if striking power of sufficient magnitude was brought to bear upon them. It was discovered virtually by accident that transient radioactivity could be imparted to otherwise stable elements if they were exposed to bombardment with the α particles of radon. Each atomic nucleus is protected against disturbance of its inner structure by a highly positive voltage barrier. Thirteen types of nuclear reaction have been observed, the different types depending on the nature of the bombarding particle, the energies employed and the particular element attacked. By 1930

these newer concepts of atomic behaviour were well accepted by workers in physics, but it was soon found that higher and higher bombarding energies were necessary for the successful disruption of nuclei when elements of successively greater atomic weight were attacked. It was E. O. Lawrence who conceived the scheme for accelerating particles in an ever-widening spiral and called it the cyclotron. The smaller of two cyclotrons at the University of California now produces deuterons with energies of 7 to 10 million electron-volts; the larger devoted exclusively to biological experimentation yields 16 million volt deuterium ions, while one under construction is designed to impart energies up to 100 million electron-volts. Throughout the United States there are thirteen cyclotrons in operation, nine contemplated or under construction. Deuterons accelerated to high speeds are very useful in the preparation of artificially radioactive materials. One of the most common nuclear reactions which such beams are called upon to produce is the liberation of fast neutrons from a target of stable beryllium. There are three major fields of biological study which have developed about the cyclotron, each of which offers problems of deep interest. These three fields are (*a*) experimentation with radioactive tracer substances in biology and medicine, (*b*) experimental use of artificially produced radioactive substances internally administered as therapeutic agents, (*c*) the experimental substitution of fast neutrons for X rays and γ rays in the field of external radiation therapy. The possibilities in the first field are almost limitless, as it has opened up a new chapter in the study of the metabolism of various substances in the body. Instead of chemical methods of qualitative and quantitative analysis being used to determine the presence of portions of internally administered samples in various tissues or in excreta, the residual radioactivity is measured by physical methods. The most intensive experimentation has been carried out with radioactive phosphorus, but outstanding work has been done in iodine and carbon metabolism by this means. In the second field, a particular substance may be chosen for internal use in the hope that selective ionization will occur in the very tissues where ionization effects are desired. Iodine has been shown to have a marked affinity for the thyreoid gland, phosphorus for lymphoid and osseous tissues and the spleen, and strontium for bone exclusively. Several hundred patients with leuchæmia in various forms have received doses of radiophosphorus. In general it can be concluded at the present time that this treatment accomplishes as much in leuchæmia as radiotherapeutic methods in alleviating symptoms and prolonging life. Selected patients suffering from advanced skeletal metastases and multiple myeloma are being treated with radiostrontium with encouraging results. The use of a beam of fast neutrons as a substitute for high voltage X rays or the γ rays of radium for the treatment of malignant neoplasms has been tried in California, but the evaluation of this method cannot be made for some time to come. The ionization produced in tissue by fast neutrons is 1,000 times that produced by γ rays. However, in so far as observable effects can be evaluated, neutron radiation behaves in a fashion quite similar to X rays.

X-Ray Therapy of Hypertrophic Scars and Keloids.

A. F. HUNTER (*Radiology*, October, 1942) presents a study of 931 patients with keloids or hypertrophic scars treated at the Presbyterian Hospital, New York, from 1922 to 1941. All were treated by X-ray therapy, no radium being used for this purpose. True keloid tendency was present in 5% of all coloured patients and 1% of all white patients. Detailed statistical evaluation was not possible, since there were too many qualifying factors in any one grouping. The objects of the X-ray therapy are (*a*) to make existing keloid or scar smaller, more soft, and less conspicuous; (*b*) to relieve itching and burning; (*c*) to lessen contractures; (*d*) to prevent recurrence after surgical excision. The scar is outlined with lead foil, the margins of the lead shield being three to five millimetres from the edge of the abnormal tissue. The routine treatment used was the application of a single dose of 200 *r* with medium voltage (130 kilovolts). The treatment is repeated every two weeks for four sittings, and then one or two months elapse before the series of four at two weekly intervals is repeated. Not more than four series are given in one year. The resolution of the scar tissue takes place very slowly and considerable time must elapse before the result of a series of treatments can be determined. Of the total of 931 patients, 673 were able to be followed up. Of these, 588 were treated by X-ray therapy alone, while 85 were treated by surgery and X-ray therapy. Treatment was unsuccessful in the case of 65 patients, and approximately half of these had insufficient treatment. In the great majority of patients, there occurred flattening and softening of the scars, improvement in function and relief of local symptoms. The possible superiority of one of the two methods of prophylactic irradiation, whether pre-operative or post-operative, remains to be determined.

MEDICINE.

Adie's Syndrome.

JOHN B. DYNES (*The Journal of the American Medical Association*, August 29, 1942) discusses the recognition and importance of Adie's syndrome, and presents the clinical notes of eight cases of this condition. The author considers it worth while to call the attention of the general practitioner to this symptom complex of absent tendon reflexes and tonic pupils, as it is so frequently mistaken for syphilis of the central nervous system even in the absence of positive serological reactions. In a brief survey of the history of this condition, the writer states that the tonic pupil was first described by Saenger in 1902. Markus first associated absent tendon reflexes with tonic pupils in a boy of twelve years in 1906. The same case was reported by Weber in 1933, after an interval of twenty-seven years when the patient was in good health, illustrating the benign character of the disorder. Prior to the last decade, most reports suggested that this syndrome of absent reflexes and tonic pupils was associated with Argyll-Robertson pupils, but in 1925 Moore wrote on the non-syphilitic Argyll-Robertson pupil, then Adie and Holmes in 1931, and Adie in 1932 reaffirmed the benign nature of the disorder, which has since borne Adie's name. The author describes a tonic pupil as one having a delayed or slow response to accommodation and convergence; not only is the response delayed, but there is an over-response. The pupil becomes more constricted than the normal pupil under the same stimulus. This tonic pupil may respond slowly to bright light, and it dilates in the same manner after the stimulus is withdrawn. The tonic pupil is usually unilateral, although it may be bilateral, and the abnormal pupil is usually larger than the normal pupil. The tonic pupil reacts normally to atropine and physostigmine, but is constricted with acetyl-beta-methylcholine chloride, whereas the unaffected pupil is not constricted. These findings are in contrast to the reactions of the Argyll-Robertson pupil, in which condition the pupils are usually miotic, bilateral and fixed to light stimulation, but react promptly to convergence. Furthermore, in the case of the Argyll-Robertson pupil, there is either a history or both clinical and serological evidence of syphilis, while in Adie's syndrome the history and results of serological tests are negative. All tendon reflexes may be absent in Adie's syndrome, although those most frequently absent are the ankle and patellar reflexes. In contrast to *tabes dorsalis*, the patient has no loss or disturbance of vibratory or position sense, and none of the superficial sensory disturbances, lightning pains or gastric crises of tabes. The writer states that the ætiology and pathogenesis of Adie's syndrome remain unknown, and that it has been suggested there is an association of this syndrome with other disorders, such as influenza, polyneuritis, encephalitis, multiple sclerosis, orthostatic hypotension, vitamin deficiencies and endocrine disorders, particularly hypothyreoidism. In the author's series of quoted cases, the most common symptoms were nervousness and emotional disorders, palpitation, sweating and anxiety and fear states. His cases confirm the observation of Kennedy and his associates, who drew attention to the evidence of instability of the autonomic nervous system with emotional disorders in patients with Adie's syndrome. It is suggested that the tonic pupils and absent tendon reflexes are found only incidentally in the course of the examination of these patients, but symptoms of blurred vision, occasional ocular pain, or photophobia may be associated with tonic pupils. Many patients have been informed that they have a serious disorder or a syphilitic disorder, and have at times been given anti-syphilitic therapy in spite of negative results to serological tests. The writer states that although Adie's syndrome when typical is sufficiently characteristic for a diagnosis to be made, one should not fail to exclude syphilis by complete studies. Adie's syndrome is a benign disorder, and requires no therapy unless it is psychotherapy, particularly if the patient has been previously told that he suffers from syphilis or some serious disorder requiring special treatment.

British Medical Association News.

MEDICO-POLITICAL.

A MEETING of the Queensland Branch of the British Medical Association was held at the Medical School, Brisbane, on February 19, 1943, DR. A. E. LEE, the President, in the chair.

The Future of Medical Practice.

In opening the proceedings, Dr. A. E. Lee said that the meeting had been called at the request of the Federal Council of the British Medical Association in Australia. On December 31, 1942, the General Secretary of the Federal Council had written as follows:

> With the possibility confronting the profession that changes will be made in the form of medical service to be rendered to the civilian population, it is essential that the views of the profession as a whole in regard to the type of service considered most suitable should be submitted to the Government.
>
> It is felt that this can best be done by each Branch Council calling a convention of all medical organizations in its State with the Council, the recommendations from such convention being forwarded to each Branch Council and then, after adoption or amendment, to the Federal Council.
>
> The President of the Federal Council has made a request that conventions be held at the earliest possible moment in each State. He has further requested that all Branch Councils be advised that action in this line has already been taken in New South Wales.
>
> If the Federal Council is to make its influence felt in its representations to the Government, it must have a united profession behind it. Unity will be best obtained by allowing all sections of the profession to submit their views.
>
> The matter is one of urgency. Each Council is requested to give the President's request immediate consideration, and to call a convention as soon as possible, preferably in the early part of February.

Dr. Lee said that although it was suggested that the best method for each State was to have delegates to address smaller local associations, the situation in Queensland rendered this quite impracticable. Very few associations within the Branch were functioning; the distances were very great and it seemed that no practical expression of opinion could be gained. A better method would be that the various country local associations should be asked to obtain an expression of opinion from their members in regard to certain questions. As a matter of fact answers had already come from the Bundaberg and Townsville Associations and the Rockhampton Association had sent its secretary, Dr. R. P. Rundle, down to the meeting to make a statement. Also it had been possible to obtain a certain expression of opinion from Army medical officers in Queensland, and the special meeting of metropolitan members had been called to obtain an expression of opinion from as large a gathering as possible of the members of the Branch.

The immediate reasons that prompted this request of the President were as follows. Although the Minister of Health, Mr. Holloway, had repeatedly promised Sir Henry Newland that no new system of medical service would be introduced during the war, during December a request was sent by the Federal Government to the National Health and Medical Research Council that it should consider how its scheme for a free salaried service could be introduced immediately, in whole or in part.

The President of the Federal Council had been asked by telegram by Dr. Cumpston whether he would deputize at this meeting for Dr. Newman Morris, the delegate of the Federal Council on the National Health and Medical Research Council, who was at that time absent from Australia. Sir Henry Newland had refused to attend on the basis of Mr. Holloway's promise, but the meeting was nevertheless held.

It was because of this apparent desire of the Federal Government to introduce changes in medical practice before the war ended that the Federal Council wished to have the views of as many of its members as possible concerning the various schemes at present before the public and the profession.

What were the reasons that were prompting the Federal Government to initiate changes in medical practice? They were based on the hope that from the toil and bloodshed of the war a better post-war world would emerge, in which by planned social reconstruction, freedom from want and freedom from fear would be granted to the less privileged.

Health services were an important feature in such plans for social security. The actual manner of such health reconstruction was largely based on political views. Thus in England the important political parties had all issued pamphlets embodying their views—the Labour Party hoped for a free salaried service for all, financed from taxation; the Liberal Party hoped for free medical service based on compulsory health insurance; the Conservative Party was considering the Beveridge plan *et cetera*.

These were the political views, the lay standpoint; the viewpoint of the doctor, who was most intimately concerned in the matter, as the instrument of the plans, and the pivot on which they would revolve, was not necessarily the same. In particular he could give expert opinion on two phases of the matter, and these were: (*a*) the technical application of such schemes; and (*b*) the results that would accrue to the public if direct payments for medical services were abolished.

Though to the public a free medical service might seem all to the good, just as to the returned soldier easy pensions might seem desirable, the doctor might be able to point out not only the advantages but also those defects of a free system which were not obvious to the layman.

For this reason Dr. Lee had divided the questions to be debated into two parts:

1. The doctor's viewpoint as to the abolition of direct payments for service rendered.
2. The doctor's reactions to the three types of practice most discussed, which were: (*a*) contract practice under compulsory health insurance, (*b*) free service under a salaried government scheme, and (*c*) evolution on the present basis of practice.

Actually the problems of finance and of administration were the only ones open to serious discussion; because in regard to future trends on the technical side of practice there was almost complete unanimity, both in England and in Australia, that it lay towards limitation of individual practice within groups. This group practice together with the vitally important factors of improved medical education and firmer professional discipline would form the triad upon which future improvements in the efficiency of practice would depend.

DR. T. A. PRICE said that the federal policy for a general medical service had been started about nine years ago. The Queensland Branch of the British Medical Association had adopted a policy for a general medical service by an overwhelming majority at the largest general meeting of the Branch that had been held in Queensland. It had then been stated that: "the present system of private practice does not bring the necessary medical attention within the reach of the greater proportion of the people in a manner that is satisfactory". It was stated also that: "the big public hospitals, out-patient departments and free clinics were being provided for a larger and larger proportion of the people".

The principles then laid down in the Queensland policy did not materially differ from those contained in the policy for a general medical service for Australia adopted by the Federal Council of the British Medical Association in 1940. In addition to the aforementioned policies, the National Health and Medical Research Council had advocated a federal salaried medical service, and a similar kind of service had also been advocated by a subcommittee of the Victorian Branch Council. Dr. Boyd Graham and Dr. Alan Lee had questioned whether there was any need for these radical changes in medical practice.

Why were these changes necessary? Two things were perfectly clear: firstly, if the general practitioner was able to give a complete medical service, and secondly, if all citizens were able to pay for this service, there would be no need for a change. All that would be required would be efficiency. But at present no general practitioner was able to cover the whole field of medical care, and less than 90% of the population were able to afford a complete medical service as private individuals. Obviously, organization was necessary to bring about a really good medical service. The cost of medical care should be spread over all the workers throughout their working years, either by insurance or by taxation—and enough money had to be raised to provide a service for the poor.

On the part of the profession, the changes in practice were already taking place. Medicine was in the midst of

this evolution or revolution, whichever one liked to call it, but some did not seem to realize it.

The Federal Council in its policy laid great stress on the importance of founding a general medical service on general practice. It was intended that the service should be available only to those with an income of less than £416 per year.

It included the unemployed and the unemployable. It provided for specialists, auxiliary services and institutional treatment. It paid particular attention to maternity service and advocated the payment of public hospital staffs, and wiser use of hospital out-patient departments. It also strongly advocated that the existing personal and health services should be coordinated with ordinary medical practice.

Administrative responsibility for the medical service should be placed with a federal statutory authority, a board of management composed of representatives of the various interested bodies established under a Commonwealth act administered by the Minister for Health.

The above was a short *résumé* of the federal policy. Dr. Price said that what followed was his personal comment on this policy.

The federal policy opened by stressing the importance of health and the awakening of public interest in its problems, both personal and national. The rapid spread of the State's attention to the welfare of mothers and infants and the school child, to the treatment of such diseases as tuberculosis and syphilis, and the wide extension of public hospital services were evidences of this.

These State services were increasing, but it could not be said that each new development was an expression of a unified health policy. There was no close cooperation with similar non-State or voluntary medical organizations. For instance, the out-patient departments and hospital group schemes competed with friendly societies for the same services. The confused patient often wandered from State hospital to voluntary hospital, from doctor to clinic; from chemist to "quack". Each agency kept separate records, or no records at all, and often nothing was known of what had been done elsewhere.

The general principles laid down in the federal policy were: 1. The aim of medical men should be mainly to keep people healthy and to prevent disease, and not merely to look after sick people. 2. A medical service should be based on the family, and every individual should, as far as possible, have the choice of his own family doctor. 3. The family doctor should be able to get all other medical help required to make the service complete. Consultants, specialists and all necessary ancillary services, together with convenient hospital accommodation, should be available when required. 4. The work of all the various parts of the complete medical services should be properly planned. Each health worker should have his definite part in the national plan, with no overlapping and no confusion.

The Federal Council policy for a general medical service Dr. Price strongly supported, but in his opinion it needed amending by removing the income limit clause, thus making the service available to all citizens whatever their position in the community. In addition to this alteration, the federal policy required supplementing by the addition of a plan for putting it into operation, especially in the direction of fostering team work in every district and of fostering decentralized administration on a district basis. More detailed suggestions were necessary regarding the administration and the method of payment of medical men.

The dignity and the honour and the efficiency of the medical profession could not only be preserved, but could be markedly increased if all questions of the amount of income of patients were dropped, and a medical service was planned that would include all persons regardless of their financial position.

The question to decide was whether a centralized State medical service was the best system for the ordinary practice of medicine as carried out by the general practitioner.

Full-time government appointments were the best means of obtaining efficiency in public health work and many other departments of a health service; for this work was largely impersonal. A government official could make a citizen screen his rain water tank under "Mosquito Control Regulations". These duties were carried out just as conscientiously and just as efficiently as were the duties of the ordinary general practitioner in his sphere.

The public official required tact, but his work was impersonal. On the other hand the general practitioner not only required tact, but he had to have intimate knowledge and understanding of each patient if he was to find out what was wrong with him, and each patient had to have confidence in his doctor if the best results were to be obtained from treatment.

There should be a wise government supervision in any form of medical practice, and the profession should cooperate in it. This was necessary in all callings.

In ordinary medical practice, the responsibility of the doctor should be to the patient. In a purely full-time government medical service the responsibility of the doctor would be to his superior official and the intimate personal relationship with the patient would disappear. Dr. Price said that he was speaking of a good type of individual doctor in each kind of service. A poor type would give a bad service whatever the system.

The problem was how to plan a medical service that would be based on a good general practitioner service, retain the intimate relationship between doctor and patient, and yet be organized to give a complete medical service and to include the whole community. The problem was not an easy one. It would not come of itself. It had to be wisely planned.

Dr. Price suggested that British Medical Association representatives should discuss the different proposals that were being put forward for a medical service with representatives of the trade unions, friendly societies, Returned Soldiers' League and women's organizations. This would enable doctors to explain their views to their clients and would make the clients understand what the doctors were driving at. Doctors should also learn from the clients what they really wanted and what would be best for the community. If a joint understanding could be reached the profession would get invaluable help in placing before the State and Federal authorities an approved scheme. This would solve most of the profession's difficulties as well as those of the political leaders.

In regard to the plan for a general medical service that would be suitable for the federal scheme, Dr. Price said that there were some simple essential principles that practically every one would accept. In the first place, it had to be a good medical service; medical care should be of the same good quality for all. In the second place, the service had to be complete; there was no sense in providing a service for colds and leaving out a broken leg or the treatment of blindness. In the third place, the service should be available to all citizens, rich and poor alike, and fourthly, it should be closely associated with all the other health services.

Turning to the question of financial organization, Dr. Price asked what financial organization was required to ensure that when a patient sought advice and treatment, all that the doctor would have to consider would be: "What is wrong with the patient?" and "What can I do for him?" The treatment required for a patient was the same whatever his financial position might be. With proper organization there would be no need for concession or charity, and the patient would know that his medical care was being paid for out of a fund to which he and his fellow-workers contributed either directly or indirectly.

The policy of the British Medical Association was to provide a service which should be available to every person in the community. It was contrary to the policy of the Association to provide a service of different quality for rich and poor.

The preservation of a personal relationship between doctor and patient was an essential element in safeguarding the quality of medical practice. The patient should have the right to choose or refuse a doctor, and the doctor should have the right to accept or refuse a patient, though the refusal must be based on reasonable grounds, and not on the fact that the patient was a bad risk in a medical sense.

The facilities for the treatment of all illness of all citizens should be complete: (*a*) A great deal of ordinary illness could well be treated in the home by the family doctor. (*b*) The family doctor was also the most suitable person to treat much illness that required special nursing and medical facilities in institutions. These facilities should be provided and the patient should remain under the care of the family doctor. (*c*) The patient sometimes required treatment by specialists, usually at the call of the family doctor. This treatment, either in or outside institutions, should be provided, and when it was completed the patient should return to the family doctor.

Medical service should include systematic and intensive use of preventive measures in private practice and in public health work. Preventive service to patients and instruction and guidance in the basic principles of personal hygiene should form an increasing part of the work of the individual doctor.

Dr. Price then dealt with the planning of a complete medical service. He asked whether the foundation was to be a medical service based on the treatment of patients according to their disease of the moment, by specialists in large hospitals, where groups of specialists worked, each specialty covering one particular section of medical care, all other care being given in divisional out-patient departments where casualties and other minor complaints were dealt with, any serious cases being sent to the specialists at the base hospitals. Secondly, whether the foundation of the general medical service was to be based on the individual patient who would, for the majority of his health problems, be treated by his own family doctor, who would be able, when his patient required it, to secure the necessary specialist or other assistance. The service should be complete.

There was much to be said for the specialist organization of medical care. The plan was simple, definite, and looked well on paper, and the huge buildings were very impressive. But it had two fundamental defects: firstly, it failed to treat the patient as an individual who was sick—it too frequently treated him as a disease to which an individual was attached. Secondly, it failed to recognize that in most cases departure from health was an affection of the whole body, not to be treated by a specialist, but by an understanding general practitioner.

On the other hand there was something to be said against founding a medical service on general practice, but mainly because the general practitioner had too frequently moved away from general practice towards the impossible position of an "all-round specialist". One heard complaints from general practitioners that they were burdened by evening consulting hours, special calls and domiciliary work. What was really the matter was that many general practitioners were overworked. They attempted far too much—especially specialty work. Too often their health was ruined.

A really good plan for a general medical service would cure the worst evils of general practice by limiting the number of individuals for whose medical care one man would be responsible, and he would thus be enabled to do his work well without ruining his health or producing chaos.

Then a reasonable number of evening consulting hours and of special calls would be no hardship, but an essential part of general practice.

In regard to the foundation for a plan based on general practice, Dr. Price said that this, of course, had not been worked out in the federal policy. The State should be divided into health districts—ten or eleven in Queensland would be a suitable number. These should correspond to grouped local authority areas, such as the present Hospital Board areas in Queensland. The larger towns of 30,000 inhabitants would be subdivided into health districts of not more than 3,000.

There would be Federal or State control of policy and finance, decentralization of administration and responsibility on a district basis, local lay control by representatives of local authorities, unions, friendly societies and the profession.

All practising members of the profession in each district would form a group, with the health of the district and the discipline of its members as its responsibilities.

The group could choose whether to adopt the panel system with a capitation fee, or a system of fees per service rendered. In England they could have a panel system or a fee for service rendered. In several districts at the commencement of the national health insurance scheme, many districts had adopted the fee-for-service method, but after some experience it worked out that the financial reward was not so satisfactory as the panel system, and now every one of the districts had adopted the panel system. Under this panel system there would be a limit to the number of individuals for whose medical care each general practitioner was responsible. Specialists should be paid by salary, part-time salary, or fees for service rendered.

A central clinic would be established where X-ray, pathological and biochemical examinations would be available.

The group could decide whether or not individual consulting rooms would be at this centre, or in their own homes, or elsewhere. The group would elect its own chairman and secretary; it would be the centre for the various activities of the district and for all the services to be coordinated on the district basis (baby clinic, child welfare, school medical service, medical officer of health, physical fitness, tuberculosis and venereal disease).

The district medical officer would be an official, not to find fault with individuals, but to coordinate the whole of the services. He would be a member of the group and responsible to the group and his reports to the central authorities would go through the group, so that he would be simply a member of the group.

A district hospital of suitable size would be provided, on which the group would act as staff, both resident and visiting.

The group would undertake special work, according to the size of the group, and as far as possible to the inclination of the members. When vacancies occurred, applications would be called and men appointed by the local board from those applying. Men could thus leave one district and go to another, but they would not be transferred without their consent. Annual leave, sickness leave when necessary, and post-graduate study leave would be arranged. Men would be able to take root in a community and form lifelong friendships and become permanent influences in the life and undertakings of their district. One of the problems of modern life was the nomad, who wandered over the face of the land, staying a few days, a few months, or a few years in any one place. With the showman this might be necessary; but it should not be necessary in many callings where it occurred today, and certainly it should not be necessary nor the rule in medical practice.

In his wanderings over Australia during the past few years it had been Dr. Price's privilege to meet many general practitioners who had made themselves a vital part of their community, and had taken a wide interest in its welfare; these men were looked up to and really beloved by a host of ordinary men and women whom they knew and had attended in their times of sickness and trouble.

Finally, Dr. Price earnestly urged that a complete medical service on the lines suggested by the Federal Council seemed to be the best solution of present difficulties. It should be based on the general practitioner service with all other necessary medical care added, and the cost should be spread over the whole community.

SIR RAPHAEL CILENTO, speaking in support of the National Health and Medical Research Council's scheme, said that there were two points to which he wished to direct attention because they were not correctly represented in the very short *précis* that had been distributed to members.

First, with reference to the invitation that was issued to the President of the Federal Council to attend the meeting of the National Health and Medical Research Council for the discussion of a general medical scheme for Australia at Canberra in November last, the invitation was not, as had been suggested, an invitation to institute either the whole of this proposed service or any part of it; but to discuss this method together with other methods that might be undertaken at an opportune time—methods and plans that might be laid down in advance of the need. It was an arrangement entirely in line with the recommendation of Major-General Burston, referred to by Sir Henry Newland at the annual meeting of the Federal Council of the British Medical Association in September last.

It had been widely publicized that no representative of the British Medical Association could attend such a meeting because it was necessary to protect the interests of medical officers with the troops, but what, in effect, was the best thing to do for medical officers with the troops? Everyone was now agreed that it was better to discuss a scheme and lay down a plan while medical men, whether in Australia or overseas, had their maximum bargaining power. They would never have more bargaining power than they had at the present time. If they waited until 2,000 medical men returned from overseas, their bargaining power might be nil. The situation at the close of the war would inevitably be chaotic, as it was at the close of all wars. But the need for a general medical service would be as great or even greater than at present, and in those circumstances it was quite possible that a service arranged by laymen might be imposed upon the medical profession and upon the public.

Sir Raphael Cilento thought that that point had now been fully apprehended by the British Medical Association because, for one thing, it had called the meeting that evening. It had realized that now was the time to plan and that medical men were the people to do the planning.

Doctors had to realize that in medical planning two very important aspects of the subject were constantly being confused. One was the content of medicine—the professional side—the determination of what the public ideally needed and what doctors should give the public in a professional sense accordingly. The other was the economic aspect of medical care, and this was totally distinct.

In respect of medical care, it demanded answers to the two questions: "Who shall pay for it?" "How shall it be paid for?"

On the first aspect—the content of medical care—doctors were almost all agreed. It was the best service that money

could buy. The detail had been set out on a tentative basis in the National Health and Medical Research Council's plan, but there had, up to the present, been no public definition of the proposals of the British Medical Association. Sir Raphael Cilento had been astonished that evening to hear some of the proposals that were mentioned by Dr. Price, because, if these had actually been accepted by the British Medical Association, there was hardly a hair's breadth between them and those advocated by the National Health and Medical Research Council; many others that differed in detail were very similar in intention. The ideals to be attained were identical; the methods of attainment, however, were different. He would come to this later, however, if time permitted.

The other thing that Sir Raphael Cilento wanted to say—his second criticism—was that the *précis* that had been sent round to members of the Branch was hardly a *précis*. It said that the National Health and Medical Research Council's scheme was similar to the organization of the Australian Army Medical Corps. This was completely incorrect. The organization of the Australian Army Medical Corps was not only not "a close analogy", but Sir Raphael Cilento could think of nothing more different. The statement was quite misleading. Then he wished to direct attention to those carefully selected adjectives in the second and third lines—"a centralized bureaucratic control of an elaborate medical edifice". That was not a *précis*; it was propaganda.

The whole purpose of the National Health and Medical Research Council's scheme was that it should be decentralized, based upon group practice—upon the widest decentralization that could possibly be made workable—and, further, based on medical control of medical matters. Sir Raphael Cilento did not think that there was a thing in these proposals that did not fall into line with what the British Medical Association had accepted or recommended from time to time, and he was confirmed in this view by this draft interim report of the Medical Planning Commission set up by the British Medical Association. This was the report that appeared in the *British Medical Journal* that was lost in transit, but he had managed to get a copy by air. It was dated June 20, 1942, and it was amazing how closely it followed the lines that were laid down in Canberra twelve months before—in July, 1941, and subsequently in November, 1941—the study of similar conditions producing similar conclusions.

This gave even greater force to the similarities existing between the proposals mentioned by Dr. Price and those suggested in the Government's scheme.

The suggestion was made, however, by some—he thought that the Branch President was to advocate such a suggestion—that, irrespective of the merits of any scheme, there was no need to act now; that members of the profession could sit by and watch events, and that in due course, as the President had—somewhat flippantly, Sir Raphael Cilento thought—observed, the Government would propose but the British Medical Association would dispose. Sir Raphael Cilento thought he was wrong. Such critical moments were never fortuitous. The pattern of any particular moment—that was to say, the social pattern at any moment—was not a haphazard thing. The very pattern that they were looking at that evening had been on the loom of time for two centuries. If they wanted to see the origins of the pattern of the plan they had to make, it was necessary to go back to the days of Queen Anne, when, for the first time, some of those entrusted with the welfare of the people had just begun to see that the care of the indigent sick must depend upon the State. Now, as those present knew, the Queensland Branch of the British Medical Association had laid it down that 80% of the people were unable to pay fully for medical care. They had also laid it down, and he thought it was true, that no medical man could know all about all aspects of medicine. In fact, not even by reading could he keep himself in touch with anything but the major aspects of it. Medical men had to specialize.

But what did specialization mean? It meant sometimes, as the President had pointed out in a recent article, a lot of unnecessary surgery; it meant men undertaking a considerable number of things they were not fitted to do, because of ignorance, or crowding into a specialty which was best paid because it afforded a better economic return. Either way, even the most conscientious man could not give a full and complete medical service to his patients. Those present would all admit that this was true, and if Sir Raphael Cilento asked how it was to be met, they would reply—"by providing proper facilities for specialist consultation, radiography, laboratory work, and ancillary services". That answer simply was: "Group practice."

But a phrase like group practice needed definite elaboration. Was it possible to have group practice in an outpost town? No. There was only one man there—if it was far enough out, there was no man there, unless the Government put one there and paid him. The National Health and Medical Research Council's scheme said it would do this, and the profession said: "All right—you put a man there and pay him—that's all right." The National Health and Medical Research Council might therefore put salaried men in outpost places with the consent of the profession. This was natural enough because it was not economic for a man to try to get a living in such a place.

But supposing this was interpreted in the terms already mentioned, that was, giving the best of services to all the community, and, admitting that no one man could do it, did those present know how many towns like that—one man towns—there were in Australia? There were literally many hundreds of them.

They had no group practice facilities as things were; no security of tenure; but also no opportunities for post-graduate study; and no specialist facilities. The National Health and Medical Research Council aimed to give them all these under these proposals.

In all such outpost places a man should be paid a salary to save him from economic insecurity; such men should be linked up with medical men and hospitals in the neighbouring towns and in the large central town of the area. They should have visits from specialists when required in accordance with the needs of the area, and their group practice should be geographical rather than immediate.

Turning to the towns next in size—the intermediate rural areas in which the biggest town would probably be the cultural centre of the region—Sir Raphael Cilento said that the Council aimed at making that region self-supporting and self-controlled about its basic town, and linked up with the still larger towns beyond that again. The Council wanted all medical men in that particular area to be a cooperative group, undertaking the care of the health of the whole of the people in that community on a roster settled by themselves, and in all professional essentials under their own local control. The Council wanted to appoint one officer there whose duty it would be to coordinate public health and private practice, but not necessarily as chairman of the local medical body unless he was so elected by his fellows. The Council wanted him to be there as a government representative, a liaison officer, because it was necessary that the central body should be satisfied that the health of the community was being adequately cared for in a professional sense.

For administrative control in a financial or economic sense, it was necessary also that there should be a controlling body, and the government representative would be liaison officer also with that body, on which actually went the constituent local authorities for the area. These, after all, were going to provide the money, and it was an absolute principle of government that public funds meant a sufficient degree of public supervision. The Council wanted all constituent local authorities, therefore, to be represented, but it did not want them to control the area for medical policy. It was not possible for any but medical men to apprehend the medical needs of a community. It appeared to Sir Raphael Cilento, therefore, that local authorities, while charged with the actual care of the health of a district in a statutory sense, should implement but not originate policy—such policy should be controlled from the central body to which he would refer later, and administrative local authority bodies should, he thought, implement it and provide the funds for its operation.

In reply to a question as to what size these areas should be, he could only say that they would be specific areas determined by local circumstances in each place, and that, for the sake of argument, on a population basis, 100,000 would be an appropriate number—that was to say, ten or eleven centres in Queensland if the metropolitan area were included as one. The British Medical Association had apparently arrived at the same conclusion.

So far he had been dealing with the country where it was necessary to get collections of people to make up the numbers. The National Health and Medical Research Council suggested that, in regard to the capital cities, or possibly other places where there was a very great concentration of people, the problem was not one for collection of towns and places into a group, but one in which it was necessary to subdivide—there should, in fact, be a health centre at each appropriate stategic point—at each centre, say, of some 30,000 people. In such a centre it had been estimated—on the estimate of one man to 2,000 patients, which was the basis accepted some time before when

insurance was under discussion—that there would be 15 or 16 men to form a cooperative group.

The question was whether such group practice could be set up on any basis other than the one of State control. Sir Raphael Cilento thought not. There should not be 30,000 people with 15 or 16 medical men, all working like slaves to keep the wolf from the door, and paying from 25% to 40% of their overhead expenses to keep themselves established in competitive practice. Of these 16 medical practitioners, some were men, some women, some lodge doctors, some general practitioners, and some specialists. The whole 16 could work in one centre cooperatively and provide between them a complete service for the whole area, and this could be done at a considerably cheaper rate than at present, or the extra money could be spent in providing laboratory facilities.

These were the considerations which were at the basis of the National Health and Medical Research Council's plan.

It had, surprisingly enough, been advanced as one of the chief criticisms of the plan that the Council sought to deprive the patient of free choice of doctor. This amazed Sir Raphael Cilento. He would like to ask what free choice the patient had at present. Leaving out any question of the Army, Navy and Air Force, Civil Construction Corps *et cetera*, where there was no choice of doctor, what choice had a vast number of people in country areas? The patient could not have a free choice where there was only one man, and as Sir Raphael Cilento had said previously, there were literally hundreds of one man towns. What choice had the patient, even in the city? He was limited by distance and by cash. Distant country patients might well desire to consult men on Wickham Terrace or in Macquarie Street or Collins Street, but they could not afford the fare. Many a man in the city would like to consult Wickham Terrace men, but he could not afford the fee. Many a man would like to consult some one or other of the sixteen men in his own suburb of 30,000 people at the present time, but he had to go to his lodge doctor. The Council proposed that the patient should be able to go to any one of the whole of the sixteen doctors in that suburb, because they would be working at that central clinic. In this way the patient would have a choice of doctor greater than he had ever had, and this would be the first step, if he required it, to specialty aid—a specialty aid wider than he had ever previously contemplated or could ever previously have paid for.

These sixteen doctors in the patient's own suburb would practise at the clinic on a roster that they would provide for themselves, and any patient would know at what time the particular doctor of his own choice was available. In an emergency he was restricted to the immediate emergency aid that the word implied. This was the case in all circumstances.

As for domiciliary services, they would be provided from the clinic similarly on a roster, and with the assistance of juniors allocated to the place in accordance with the National Health and Medical Research Council's scheme.

It was proposed to attach to the place ambulance transport brigades to work in conjunction with the clinic, the specialty hospital, the ring of intermedite hospitals described in the scheme and the private hospitals, and to give as good a service in every respect as was required.

The Council proposed that, in respect of hospitals, there should be no out-patients. Medical men had long asserted that the out-patients had deprived general practitioners of a large part of their main field. The Council proposed to return the out-patients to the general practitioner through the clinic.

Similarly the Council believed that every central hospital in a city or large town should be the specialty hospital, and that no patient should be admitted to it except from the clinic on proper advance advice. Patients should in no circumstances be admitted to a specialty hospital without this, except in the case of emergency demanding immediate specialty attention. They should go there from their own private practitioner in normal circumstances, and when the specialty technique work was done, they should report back to the practitioner at the clinic, and the convalescence should be watched and recorded under the charge of the family doctor himself. This not only made for a complete continuity of records at the clinic—a most important thing from the point of view of collation of records, and the maintenance of all that was best in the patient-practitioner relationship, but it actually meant that there was no destruction of the personal relationship whatever, when the family doctor became the medical man of the clinic.

This had been carefully worked out in order to preserve everything in the patient-practitioner relationship that the medical profession had ever declared to be essential. A brief examination of the present situation would indicate that in present circumstances these relations were less and less possible with private practice.

To take the hospitals then: it was at present proposed that there should be a central specialty hospital with a paid staff; an intermediate ring of hospitals with skeleton paid staffs; and health centres or clinics for general practice (30,000 people) which would sift out in the neighbourhood of their own homes all those out-patients who formerly attended hospitals. The Council wanted to save something of the millions of wasted hours that were now dropped into the out-patient chasm by thousands of people who waited four or five hours for treatment.

"Well", it was said, "what is the link between the general practitioner and this series of hospitals?" The link was the specialist who worked right through all departments from the stage at which the case went beyond the capacity of the general practitioner. The general practitioner himself sent his patient into private hospitals and the ring of intermediate hospitals for patients with common diseases requiring hospital treatment for eight days or longer. In these intermediate hospitals the general practitioner was in touch with his patient and also with a visiting specialist.

Beyond the range of the intermediate hospital was the central specialty hospital with its fixed paid medical staff, but with its appointed specialists for every department on a visiting part-time or full-time basis. This was the senior range of specialists who worked between the intermediate hospitals and the specialty hospitals just as the junior range worked between intermediate hospitals and the clinics.

This range of specialization indicated that the specialist himself was graded both for type, seniority and city and rural work, and no general practitioner was prevented from graduating into the class of specialist if he could do it. The scheme, in fact, provided for what was virtually a specialist scale, and men, after their fourth year, could indicate whether their intentions were towards the ranks of junior and senior general practitioners or of junior and senior specialists. Moreover, it was from these specialists that men were sent to subsidiary centres as specialists wherever these were required, or finally to outpost towns on visiting duty for special purposes at set intervals.

Group practice therefore consisted of group practice in the clinic between medical practitioners; group practice in the country as between isolated medical men and their better placed brethren in larger towns; and group practice throughout the whole area for the better distribution of specialist facilities.

If those present knew of anything better than that, Sir Raphael Cilento would like to hear it. The whole of the scheme was tentative, but it had been laid down at the outset of the outline as published that the scheme should be discussed in absolute detail by and with the medical profession, and based upon an agreed measure of organization of the profession. What more was wanted?

Everybody agreed that the public wanted better medical care. Only team work could do it. Sir Raphael Cilento asked to be told something better than he had suggested and he would advocate it. But in any case, he asked for the views of the medical profession and suggested that they should be made known to the public. The public should not be given the idea that all the profession was interested in was the financial side, necessary enough as such considerations were in cold common sense. Up to the present all the profession had said, in effect, was: "Put your salaried service in where it is uneconomic for us, as private practitioners, to go." This might be interpreted: "Show us some way in which we can do it with profit to ourselves, and we will do it."

What effect would such an attitude have upon the public who, after all, were full partners in this matter of medical care, and being the persons who paid the piper, were very much inclined to feel that they should call the tune?

Sir Raphael Cilento said that he wished to come back, in the small time remaining at his disposal, to the economic side. Very briefly, there was, first of all, the fee-for-service proposal; secondly, there was the insurance plan; and thirdly, the salaried plan which he personally advocated.

Those present did not need to be told that one of the biggest sources of difference between patient and doctor was the question of direct payment. They should read the articles in The Medical Journal of Australia by Dr. Stanley Boyd, and note what he said about the difficulty between patient and doctor of the fee relationship. It was the stumbling block to the best there was in medical service.

On the other hand—to take the other side—those present and Sir Raphael Cilento himself knew perfectly well that

reward for work and future prospect were things by which every practitioner was spurred. It was useless to talk of taking ambition out of work—that took the sun out of the heavens. Admittedly there must be some reward, then. But had it to be one that depended upon bedside manner? Had it to be one that depended on how many patients the doctor could collect and keep?

And if fee for service was to be the ideal, and if it needed, as it was said to do, a restricting string to limit medical men to 2,000 people each, so that the bedside manner would not swallow up science to the disadvantage of the people, when was this restriction to operate? Were medical men to be restricted to 2,000 as soon as they graduated, and did they never advance beyond that? Was there, in other words, to be no reward for good work, no gratification of ambition?

The National Health and Medical Research Council proposed that there should be very definite rewards and that they should be matters of merit and seniority.

In the first instance, the scheme was based upon definite economic security for the medical men as well as the best provision possible of medical care to the patient. People said more and more that health was a national asset, a national essential, which must be secured to the people of the nation. If it was essential, then the medical men who made it were essential also, and should be provided with a living that justified the selection of the best men for the purpose.

Again, it should provide facilities for research workers. There were a lot of research men who could not get a living in practice; there were a lot of potential research men who had been prevented from exercising their natural inclination by the need to earn a living. This had to be corrected in the national interest.

The President had been advocating better medical education—providing better standards for the profession—but how could this be done when men who were striving to obtain a bare living would need to attend post-graduate courses at the sacrifice of their practices?

Returning to an aspect of the fee for service which he had omitted, Sir Raphael Cilento asked whether those present realized that one of the outstanding gibes advanced against a State service was that it would mean an infinity of forms? The system that was advocated by the National Health and Medical Research Council did not advocate anything but the necessity to keep proper notes of cases. Alternatively, the fee for service that was held up by the very people who advanced these gibes would of necessity be more cluttered up with forms and red tape than any other kind of practice whatever. Did those present know the forms that were used in New Zealand? Did they realize that in Australia, working on the basis used for estimating insurance necessities—two visits per person per year—medical men would need to handle 14,000,000 chits, and that, if it was necessary to scrutinize these—as undoubtedly it would be—14,000,000 chits would need to be scrutinized, and that the general medical service, being self-sufficient, would need to bear the burden of the investigation of the 14,000,000 chits, together with the cost of the clerks to handle such a service?

Moreover, a fee-for-service system, bluntly, meant an opportunity for the weakest men in the profession to abuse it, apart from the necessity to create an enormous amount of clerical work if there was to be any attempt whatever at detection of irregularity. Personally Sir Raphael Cilento could not imagine how abuse could be met since no man could challenge the opinion of a medical man that he needed to visit such and such a person such and such a number of times.

It was pointed out that in England a further extension of the compulsory health insurance system had recently been advocated, but it was not, as a rule, pointed out that it was said that this was done because it was necessary to build on existing bases, and the insurance system had been in operation for thirty years. It had been violently opposed by the medical profession when it was introduced, but it had worked out much better than was anticipated, and it would therefore be necessary to carry on upon these established bases.

In response to the inquiry as to the course a medical man took under a salaried service, Sir Raphael Cilento said he would refer those making such inquiry to the scheme itself, but very briefly and insufficiently the situation was that, after graduation, a medical man spent a period of one year in hospital and was paid the ordinary rate there; he then spent a second year in the hospital and the clinics; and he then went to an outpost for two years. His salary was increased in accordance with the set scheme the whole time. At the end of four years he needed to decide whether he would become a general practitioner or specialize, and if he was capable of demonstrating his capacity for specialization, or, in fact, in either case, he proceeded along the selected course he had chosen until he reached the highest grade in specialization or practice of which he was capable.

In regard to administration, this was a matter for discussion with the medical profession itself. The administration had to be democratic and along the lines of legal institutions. The extent of administrative control, which was something outside the control of professional matters or actual medical care of patients, should be on the basis of a graded degree of organization of the profession.

The profession could not fail to see that where government funds were the basis of any service provided, there must be government supervision, but the degree of that supervision might be as light or as heavy as the medical profession saw fit to make it.

Dr. A. E. Lee quoted from a document called "Planning a Complete Medical Service", issued by Dr. Price some years before. In this document Dr. Price wrote as follows:

> The first thing to consider is, what is to be the Foundation of the Plan?
>
> We must get out of the present chaos. But in planning a unified Health Service we must be very careful of our grounds before we term a more complex system chaotic. Our present system of preventive medicine and of Personal Health Services has evolved by the very safe plan of time-tested development, and by that method four distinct trends of practice have emerged.
>
> Firstly, preventive services have grown into specialised salaried Departments of the State. They have grown thus because they are community rather than individual enterprises, and the State is the natural unit to control them.
>
> They demand for their efficient functioning specialist knowledge of a different character to that needed by the practitioner of curative medicine, and therefore the two types of practice have tended to grow apart. Unless some miracle occurs by which the sum of medical knowledge shrinks to an extent where a single individual can encompass both the preventive and the curative bodies of knowledge, they will remain apart as far as we can see into the future. Such a development as this is certainly not chaotic.
>
> The provision of personal Health Services has developed along three well-defined lines:
>
> 1. By the extensive development of hospital services, supported by voluntary contributors or by the State. Paragraph 42 of the Federal Council Plan states in this regard:
>
> The public Hospital, which at one time was primarily the place in which the poor could obtain treatment they needed, is today providing a highly efficient service to the great majority of the population, comprising not only the poor but those who can and do pay, in part or in whole, for the care they receive.
>
> Though most of us think the hospitals with which we are associated may not have attained the final pinnacles of efficiency, there is certainly nothing chaotic about their organization and aims.
>
> 2. The second form of development has been by the growth of contract practice. Paragraph 25 of the Federal Council Plan states thus:
>
> During the past hundred years the Friendly Societies with the assistance of the Medical profession have built up a great system of voluntary health insurance which provides a fairly complete general practitioner service for about a quarter of the population. Within its limitations the service given to Friendly Society Members is of a high order.
>
> This edifice of contract practice, evolved through a century with the aid of the profession itself, again scarcely merits the term chaotic.
>
> 3. Finally, for the remainder of the population, personal health services are offered under private practice on a Fee for Service basis. The development of this practice is again in no way chaotic, for it is the typical medical response to the individualistic society in which it exists. While such a society remains so those who can afford it will continue to seek health services on the same basis.
>
> The fact that all these methods of practice have grown up parallel with each other is not a sign of chaos, but of a response to differing human wants and characteristics.
>
> No less in the future than in the past will patients wish to choose between these services, and a large

proportion would always be dissatisfied if they were dragooned into a single type system.

Actually, if the proportions quoted are accurate, the least disorganization would occur if that single service were of the hospital type.

But there is not the slightest reason why each type of service should not continue to exist and to prosper.

That some persons will be dissatisfied cannot be doubted. While our individualistic Society exists, there will be many who begrudge their inability, on financial grounds, to take advantage of the type of practice of that society. But that grudge is no more rational than a similar disappointment that he cannot own a motor car, or a diamond necklace, or anything else he cannot afford.

And no possible change in the financial basis of medicine will make the service he accepts any less concessional, or disturb the axiom that a person who receives something for which he has not paid, whether the payment be by fee, or by premium, or by taxation, is being granted a favour, a concession.

In all the enquiries being made into social services in Australia, no one has implied that because of a financial barrier any person is now debarred from obtaining adequate medical attention.

Our objects in medical planning seem to me clear cut.

We should not acquiesce in any plot that attempts to dragoon the whole population into one single system of medical service.

Rather we should strive, each of us in the way that lies closest to us, to improve the efficiency of these separate and if you like competing health services.

The way each of them will advance to greater efficiency is also quite clear cut, and is embraced in the triple requirements of better professional education, firmer medical discipline, and group practice with its implied limitation of individual practice.

Doubtless in the future one of the services will develop an ascendancy over the others, but which it will be depends on circumstances, political, financial and technical, which are as yet hidden from us.

Till we can envisage better these circumstances, to make a choice would be folly.

Dr. Lee then said that those present had heard the opening addresses; the subject would be thrown open for general discussion. But in order that such discussion might be kept within reasonable bounds, and some finality reached, he proposed that the following three questions should be debated, and that members should keep strictly to the subject of the particular question that was before the meeting.

The first question demanding an answer concerned the doctor's viewpoint of the financial side of practice, which was not necessarily the same as the general public's view, the question of finance on the lines:

Question 1: "Do we, as doctors, think that it is in the public health interest that direct payments by patient to doctor for personal health services should be discontinued, that is, should private practice on the fee-per-service basis be abolished?"

After a discussion on that, Question 2 would be taken.

Question 2: Should future practice be based (*a*) on a nationalized salaried service, (*b*) on a contract system financed by compulsory health insurance, (*c*) on an evolution from present methods of practice?

Discussion on Question 1.

PROFESSOR JOHN BOSTOCK said that they had listened with great interest to a number of things. He wished to say a little on the psychological angle of the problem. He thought they had to ask themselves a question: "Why do people come to a doctor?" The obvious thing was because they were ill. Actually Professor Bostock thought that probably about 50% of patients did not come to doctors because they were ill, but because the normal person had some little ache or pain and for a wide variety of reasons—because they needed a little sympathy, a little kindness or an afternoon out. There were a whole heap of reasons why they came.

How was it possible to stop this, say 50%, from increasing under the present system? There were several methods. One was that the patient paid a fee. All people enjoyed pleasure and they ran away from pain. If those present analysed this fact, they would find that this proportion was kept on an equitable basis, first of all by payment—payment for services. The second method was that the patient was kept waiting. This was seen in the general hospital. It was necessary to limit the number of patients by making the practice somewhat inefficient. If the system was absolutely efficient, it would not be possible to cope with the work. These were the two methods doctors employed and they had to be taken into consideration in regard to these schemes. The third method was, he thought, very important, and that was that the patient had to be educated in a community manner to make him realize that if he was getting many benefits he was taking them out of the mouths of others. It was necessary to have a great deal of community spirit, much more than existed at the present time. People had to be educated so that they would not come to the doctor unnecessarily. He thought that the profession ought to stress this question very closely.

DR. MILTON GEANEY remarked that it had oftentimes been said that in any national health scheme, there would be more done by preventive medicine. People should be prevented from becoming ill rather than cured. He could not but see that if they looked at present-day preventive medicine, there was very little that had come out of the work of individuals who had been on any health scheme. It was possible to stop diphtheria, smallpox and typhoid fever, but further than that there was absolutely nothing, and Dr. Geaney could not see how any State-controlled service was going to improve the position. Medical practitioners knew that advances were being made every day and evolution was going on, but the layman seemed to think that if medicine was a State-controlled thing, sickness would be wiped out. After all the food of the population and better education of people in the matter of looking after themselves were going to do more for the prevention of disease than the medical profession was going to do. And Dr. Geaney quite agreed with what Professor Bostock said—it was a thing that would have to be watched very carefully—people making a nuisance of themselves. People had nothing else to do and they thought they would go and see the doctor. The food of the people, he thought, was of much greater importance than giving them free medical service. People should be fed properly. There were errors in the people's diet and Dr. Geaney did not think that doctors were going to do such a great lot for the public from a nationalized health point.

DR. J. E. STREETER said that it seemed to him that the first question brought up the point as to whether they were socialists or communists. It was a question of money. Dr. Price had pointed out that 90% of the people had not the money to pay for services—someone else said it was 80%, but they both said the fee was always the stumbling block, and doctors all knew that this was the case, but that did not say that there was anything wrong with the medical system, but with the money system. The whole question rested on whether the money system was right or wrong. To refer again to the question of the fee, Dr. Streeter maintained that the proper remedy for that was for the people to pay for their medical services just as they paid for their food, but for the medical profession to see that the money system was reformed. Real wealth was available for everyone, and the patients had enough money to pay, and they would then get the services they needed.

DR. FELIX ARDEN said that the question as set out was ambiguous and one could not give a direct "Yes" or "No" answer to it. Already a considerable section of the population made little or no payment (an average of 2½d. per out-patient visit in the Hospital for Sick Children), yet these people were, on the whole, treated just as efficiently as the section which visited private practitioners. In short, there was no reason to suppose that the public health would be either benefited or harmed, or in any way affected, if direct payments by patients were no longer made. The second part of the motion did not mean the same thing as the first part. Everyone could vote for the retention of private practice. There was no reason for it to be abolished. In the scheme for a salaried service put forward by the National Health and Medical Research Council provision for private practice for those who preferred it had been made.

DR. CYRIL WEEDON asked why the fee for service should be abolished. Why interfere with that? It affected only about 15% of the population. It had been stated so often that 80% could not pay. There was no evidence of that at all. The only evidence was that they did not pay. Fifteen to twenty *per centum* were prepared to pay willingly as they went along. What right had the medical profession or anybody else to abolish the system?

DR. S. F. MCDONALD said that many people to a very great extent were influenced by paying and getting something in return for it. Three-fourths of doctors' patients were

getting encouragement and reassurance, and to them the fact that they had paid for it meant a great deal more than anything else. The difference would be noticed with those in public hospitals.

DR. R. P. RUNDLE, speaking as Rockhampton and Bundaberg representative, said that his association had answered the question in the negative. They did not think it to be in the interests of public health and they were also not in favour of the abolition of private practice on the fee-per-service basis. Dr. Rundle had not much to add to this on a personal basis. There was one aspect of fee per service, and that was that it certainly acted as a deterrent to Australians becoming a nation given to pill swallowing, as the British nation had become.

DR. S. JULIUS said that Australia was a capitalist country and part of a world capitalist economy. The forms of society were not permanent. Capitalism had developed through slave economy and feudal economy, and the next stage which all capitalist society would undergo was socialism. The law of social change was the law of the class struggle. This had existed in all forms of society. It was responsible for the change from slave economy to feudal economy, from feudal economy to capitalist economy; it would be responsible for the change from capitalist economy to socialist economy.

It was impossible to predict, except in a general way, when the capitalist economy of any country was to be changed to socialism: a wide range of interconnected internal and external factors determined this for each particular country at a particular time. In Australia the trend towards socialism was apparent, although it could be said that capitalism would continue here in Australia after the war for a period of time—but the duration was unpredictable.

But even if capitalism should persist in Australia for a long period there would still be a change in the relationship of classes—the relationship of the small ruling class which owned the means of production (factories, land, means of communication, transport *et cetera*) and the large mass of the people that owned only their ability to work.

The war had intensified the class struggle within Australia, and the inability of the ruling class to solve in the interests of the people the post-war problems of the demobilization of armies of soldiers and munition workers and the retransformation of economy to a peace-time basis would further intensify this struggle. These changes in the relationships of classes would necessarily affect the medical profession which must be prepared to examine the role that it would have to play in this period.

These were the realities: this world was creaking and groaning under the present stress. Nothing was stable; change must occur, but the degree and depth of the change were unpredictable. The mass of the people would demand economic security, freedom from unemployment and want, and this demand would have to be heeded.

The present form of medical practice was not permanent. It had undergone change from the barber surgeon level to its present high form; and higher forms of its organization and efficiency lay ahead. This unfolding and blossoming of the flower of medicine was inhibited by the present economic system and its consequence—practice on a profit basis.

Hence it appeared to Dr. Julius that the free salaried medical scheme of the National Health and Medical Research Council was a progressive step and, what was more, possible within the pattern of the present capitalist economy. There was no doubt that the conditions of labour within the scheme were advantageous to the hurried and flurried general practitioner. There would be differences of opinion as to the rates of pay and mode of advancement, but these contentious points were of ready solution.

There was need to discuss one aspect in detail—the suggestion that a free service would be detrimental to public health and that this damned the scheme. It had been stated that a hospital out-patient department had a large proportion of patients who had no organic disease and were chronic leaners requiring sympathy, and that this group gathered as there was no imposition of fee.

The imposition of fee would deter some from attending; but their inadequacy would remain uncured. This inadequacy lay on different levels—domestic, social, economic or constitutional inadequacy. These different levels of inadequacy were not confined to the working class. They occurred in middle and upper classes and formed the basis of the large fashionable and profitable "lap dog type of practice" which flourished in large cities and capitals of the world. This grouping was not deterred by fees; the converse was true—the larger the fee, the more ardent the pursuit of the doctor.

It was implied, too, that the absence of a direct monetary transaction between patient and doctor, the crossing of the palm with silver, would encourage the development of neurosis. Soviet Russia had a free medical service and none could challenge the fact that the neuroses had diminished there—this in a socialist pattern of life. Again, in the capitalist pattern of life the inadequacies mentioned determined neurosis and these inadequacies only. Dr. Julius asked whether anyone had found a patient in the out-patient department who said: "If I don't see a free doctor twice a week and sit on a hard form for two hours until I see him I am going to develop frustrations and pains in the legs." The idea was fantastic; it was unrelated to life. There was no free practice in any part of the world from which such a deduction could be made; and if under a free salaried service such a fantastic neurosis appeared the physician would need to have no qualms about speaking forthrightly to the patient about it—there being no commercial competitor to gain advantage from it.

Finally, the term free medical service was nominal: in practice the citizen would pay for the service either in the form of a wages deduction or else in direct or indirect taxation.

DR. C. A. THELANDER said that Dr. Julius had just stressed the point he wished to raise regarding the attendance of the doctor as a luxury. Dr. Thelander did not think that he possessed that happy personality that encouraged patients to visit him, but he had had long enough experience of practice to know that there were a number of patients who did get some kind of pleasure from a visit to the doctor, and he quite agreed with Dr. Julius's statement that the financial condition was not going to keep them away. Many of them could well afford to pay for it and boasted in their social life how much Dr. So-and-So charged them; they would just as soon pay ten guineas as five, and the fee would not bother them. Dr. Thelander was inclined to agree with Dr. Bostock's statement about an inferior service. But after all the whole social structure of the world was in a very unstable condition at the present time. The place that Britain held as compared with Continental countries had been gained because of its freedom from excessive interference with the rights of the individual. Question 1 was one which certainly invited a resolution in the negative. As far as the practitioner was concerned it mattered very little. Medical men would soon achieve what was going to be the maximum salary which the taxation authorities would allow them to have; after that it did not matter how much one earned; the fee consideration did not matter so far as the doctor was concerned. But it did matter to a great many people who were the strongest section of the social fabric, those liberty-loving people who believed in paying for what they wanted and got what they were able to pay for. The question of their inability to pay had not been demonstrated. The fact that they did not pay was quite a different matter.

SIR RAPHAEL CILENTO said that they must consider very carefully before they allowed any answer at all to Question 1. What did it mean? How much of private practice received direct payment at the present time? How was the public health interest to be affected by the absence of payment for service other than directly paid service. The same argument might be applied to food and starvation. If one could afford two eggs, one could eat them, irrespective of the wants of others; if one could not, presumably one starved. What was direct payment? It excluded lodge practice, presumably, or insurance practice. If not, Sir Raphael Cilento pointed out that in the Commonwealth scheme it was intended that everyone should have access to full medical services, and he understood that there would be a deduction from everybody to meet the costs. Those who did not pay now would pay then.

What had direct payment to the doctor to do with public health, and who in that room could answer the question whether it was in the interests of public health that a doctor should be paid directly? Who among those present had had experience of any other system as a basis for comparison?

As to the inquiry whether private practice on the fee-for-service basis should be abolished, no one had suggested it should. The provision made in the Commonwealth scheme was that private practice might continue; and there was no doubt that specialist practice would continue—just as there were still private schools, although school education had been nationalized.

If this question was answered with "No", there was no need to discuss Question 2 at all. Was that the reason it was asked?

DR. J. L. SIMMONDS said that if they were to answer the question directly—was it in the interest of public health—

was that what they were after? He did not think it mattered two hoots how the matter went to the doctor. If they answered "No" and said it was not in the interests of public health that the payments should cease, then they said there was something wrong with the system. If they said it should not cease they might as well say that the doctor would not be working so well. Dr. Simmonds thought the whole thing fell quite flat.

DR. A. E. LEE said that the question was put in because there was a fourth proposal and they had that night discussed only three. One of the essentials of the Victorian scheme was that favouring the abolition of private practice by law. They wished the legal abolition of private practice. Under the service they offered free medical attention to all. The expression of opinion wanted was: "Is it desirable on the fee-for-service basis that private practice be continued?" It was really an important question. The whole of the New Zealand argument rested to a considerable extent on this matter and Dr. Lee believed there was a very important motive underlying this question.

DR. E. MCGUINESS moved:

> That whatever health scheme we adopt, private practice should not be abolished.

DR. A. V. MEEHAN seconded the motion.

Sir Raphael Cilento said that in his opinion, private practice should not be abolished because, among other things, there would be no opportunity for a man from another country to enter this country and to be registered here. Australia would presumably lose reciprocity with other lands, and that would be a distinct defect.

Dr. Lee said that an amendment to the motion was:

> That whatever general health scheme be adopted, private practice, that is, based on fee-per-service basis, should not be abolished.

The amendment, which was seconded by Dr. A. E. Paterson, was carried unanimously. The amendment became the substantive motion and was carried.

Discussion on Question 2.

SIR RAPHAEL CILENTO moved:

> That we now discuss a general medical service for Australia.

He said that one point in favour of a national service was that it did not close the door to private practice to those who desired to continue it.

For others, the fact was that in competitive medical service the general practitioner had no security; there was no provision for his wife and family if he broke down in health; he had a "24-hours-a-day" accessibility to the public, with his wife equally the slave of the telephone; his house was not his home, but his place of business.

The Commonwealth scheme provided that he should be given economic security, in other words, that he should be secured against the possibility of a personal economic debacle; that he should not be the 24-hours-a-day slave of anyone who wanted medical service, but, by cooperation with his fellows, he should be able to get that opportunity for recreation and for study to which he was entitled; that his house should not be there for anyone to ring day or night; but that there should be a place in the whole district area (health centre) where at all times people could go and receive service; that there should be an arrangement for every doctor whereby he should have assistance, all members of the group working together; and that there should be due reward for merit and provision for specialization.

As to personal progress and promotion, it seemed that this should be dependent on (*a*) merit and (*b*) seniority, and that decisions might well be arrived at by the consent of all the men working together. At a certain age, retirement with pension should be obligatory, and if the man should die during the currency of his service, provision should be made for his wife and children on the usual service system.

Moreover, it was thought that there should be the most complete cooperation between the protective and corrective sides. This would mean that research workers in laboratories *et cetera*; salaried medical officers who stamped out smallpox and typhoid fever, and reduced diphtheria materially; those people who had done all the work in connexion with chemotherapy, from the earliest analyses up to the recent work on the sulphanilamides—that all these people should be assured of not having to do their work either "on the side" outside their struggle for a living, or in competition with their fellows, or without their results being readily known to their fellows. The Commonwealth scheme intended that they should be assured of doing this work.

Sir Raphael Cilento did not know of any system—of any competitive system—that could provide such facilities for the building up of the profession as could be provided where the medical man was protected from the necessity of having to compete with his medical neighbours.

The medical man engaged on a roster in a clinic in combination with and not in competition with all the medical men of his area, would not have to pay twenty or more unnecessary visits a day; would not have to spend his time humouring the hypochondriac or the neurotic merely because he dare not, for his practice's sake, tell them the truth; he would be given an opportunity constantly to increase his ability and to give his services to what he knew was the true medical need of his community. He would, moreover, have an opportunity—indeed, an obligation—for post-graduate study, and would require to keep himself adequately in touch with research.

The hours were growing late, but it was for these reasons that Sir Raphael Cilento would recommend national service. He would, however, point out in conclusion that the public, in a considerable number of directions, had pretty nearly a national service at present. In the situation existing, for example, in Great Britain—even as early as 1900, they had had all the large range of services from pre-school services and ante-natal clinics up to meals for school children. In 1914-1918, a large number of the people who had had this partial service went to the Army and were provided with a free medical service in all particulars. Subsequently they had returned into industry, and an increasing number of businesses and factories had provided there a free medical service for their employees, recently increased to include also their dependants.

Sir Raphael Cilento was told that in Australia some 300,000 people had medical service by various capitation fee processes. Apart from this, a very greatly increased number were obtaining free service in the hospitals, and particularly in their out-patient departments. All these had virtually decided in any case in favour of a free service, and they represented a large section of the body that was public opinion.

The costs for medical practice were climbing uphill and the receipts were running downhill. This was a matter open to the observation of any man who studied the subject. If medical men wanted an economic security that would permit also of a good medical service being given to Australia, in Sir Raphael Cilento's opinion there was only one way to get it—by nationalization of medical services, with preservation of private practice for those who desired it. In his opinion, such private practice would be a small proportion of professional services, but it would definitely exist to meet social and medical needs of particular types.

DR. E. FREE said that he thought the whole question was bound up with both patient and doctor. One had only to look at the present lodge scheme, and he thought most men would agree that 50% to 60% of the lodge patients approached the doctor with a suspicion that they were not getting the service they were entitled to. And the doctor had something in the back of his mind that the patient was coming to him unnecessarily, and the scheme between them fell down. How was it that some of these patients, when they had money to spend, would go to a private doctor? Any such scheme would fall down and therefore private practice should not be abolished.

DR. H. W. HORN found that those most intimately interested in the question were not present—the young men of the profession. (Voice: "No, because they are all at the war.") It did not matter very much to older men. As Dr. Horn had thought about these particular questions he had realized that there were advantages in a government service for both patient and doctor. For the doctor, a limitation in his hours of work; for the patient, his ability to secure a cheap service. But for both of these he believed that each would have to pay a price, and it would be a high price. The price the doctor would have to pay would be that which curtailed his activities. He would be no longer a man who could do what he liked, but to a large extent he would have to do what he was told to do. For the patient Dr. Horn thought the price he would have to pay would be a degenerated service, because he, Dr. Horn, did not believe that the rank and file of the profession would practise without the incentive which private practice gave. This did not apply to all men in the profession, but it did apply to some. A particular example was seen in how men degenerated when they were getting something for nothing. In the Queensland State Government insurance Dr. Horn supposed thousands of men had been put out of action

through a slight injury, whereas a man in his own business would carry on. Another thing of which a lot was heard was the fear of the future. Fear of the future constituted an incentive. Why did men work for a nest egg? Simply because they wished to help their children. With regard to the care of the indigent—in the wonderfully reconstructed world they were to have security for everybody. In regard to the question of free choice of a doctor, Dr. Horn did not see where it came in when the doctor knocked off at 5 o'clock.

DR. W. L. FOTHERGILL said that they had to discuss the questions from two aspects: first, utility, and secondly, from the medical man's own point of view. Dr. Fothergill had had experience of working in a centralized service. For ten years he had worked for the Commonwealth Government, and some of the things that were met with should be brought before the meeting because they did influence one's opinion concerning the value of salaried service or private practice. With reference to the small towns—in a small town, whether it was a nationalized service or private practice, the doctor was still a servant of the public at all hours of the day and night and all days of the week. In a big group a salaried service would give certain relaxation, but in Australia there were many places where there would be only one or perhaps two men and it would be difficult to arrange regulated relaxation. And that was a point that Dr. Fothergill thought had not been brought out earlier. The attributes of a salaried service had been stressed where there had been a group. Time and again Dr. Fothergill had been confronted with patients complaining of something or other and it would be necessary to make a fairly extensive examination and find there was nothing wrong with the man, and he would say: "I pay into the fund and think I ought to have a week in hospital." Dr. Fothergill thought that much of the time of a doctor was taken up in that way.

Then again there were cases in which perhaps he would refuse to prescribe medicine because he did not think it was necessary and that patient immediately wrote to the Minister controlling the territory. That letter would be received and passed through the various channels, wasting time; it would finally come back to Dr. Fothergill for an explanation and then go back again. Those were some of the drawbacks when the patient felt that he was paying for something and that he should get something. This did not happen in private practice. A patient might be only mentally sick in that he thought there was something the matter with him. But many people who paid into the fund thought it their birthright that they should clutter up the doctor's surgery and that they should get their money's worth, but on the other hand there was a certain benefit received in that the doctor was not concerned with sending out his bills. His salary was paid into his bank and it did give him a certain amount of security, but then again that security was to a certain extent limited and a certain point was reached when one realized that for the sake of one's children one had to do something better, and Dr. Fothergill doubted whether a nationalized service held out any better prospects in that respect.

DR. R. S. LAHZ, speaking on behalf of the people who lived in the country, in those areas where people did pioneering work, said that there was no medical service at all and he thought that if the answer was "No" to that question it would portray a careless disregard to the needs of the people outback by the medical profession. Recently he had been up in the Gulf country. He was 90 miles away and there was a woman a further 160 miles away in labour two days and she could not get a doctor. How, under the present system of private practice, could the medical profession give those people a service if they did not agree that a national service was necessary? Another instance—a telegraph post man, mounting the telegraph wires, fell and broke two thighs. He lay there for two days and was then brought into a country hospital where there was very little equipment. He lay there for some weeks and was eventually brought down to what under the medical scheme would be the "large town".

Dr. Lahz thought that Sir Raphael Cilento had made it clear that under a national service they would have in large country centres—Cairns, Townsville, Richmond, Longreach—the services available to the people there as they were available to Brisbane. What were they going to do with a man with acute trouble in these places unless they had some such centres—a man with a chest hæmorrhage who needed a surgeon? These patients could not be brought to Brisbane even by aeroplane, so Dr. Lahz thought the only way one could give people outback the service they should have was by a national salaried service. There was really a national service in the Brisbane General Hospital and the medical men working under it were apparently contented.

With regard to the point which had been brought up by several men that one could not trust the medical profession to give good service without pay—if this was true it was a gross disgrace, and surely it could be righted by education. There were enough doctors to see that a good service would be given.

Dr. Lahz asked that before they voted upon this question members should remember that the people outback could not get good service without a national service.

DR. C. A. THELANDER said that before they voted on the question at issue he thought they might as well face the fact that the trend of the times was in the direction of a national service, and the question as to whether it was dangerous to put men to work on a salaried basis or on payment for services was really the one under consideration. He personally could not conceive that any man who was worth while as a practitioner would sit back because he got no more for doing a bit more work. The arguments on both sides were just as potent. Dr. Thelander had seen patients to whom operation had been proposed and he found it not necessary. In some cases operations had been recommended for no conceivable reason.

They had to face that fact when there were a few Ned Kellys in the profession. If it was held that a man would not work well on a salary, was he safe when his profit was his salesmanship? Was the public safe when his profit was his salesmanship? This question did not really interest Dr. Thelander, as he was at the end of his tether, as they could all recognize, but he did think of the younger men who were coming after him. The younger men were not there that night for the very obvious reason that they were at the war in various parts of the world. On the recent suggestion that a good man would not do less work because of the national service, the relationship between doctor and patient could be just as real whether he was being paid for it or not. Dr. Thelander thought back on the past and remembered how much the Brisbane and South Coast Hospital owed him. In those days when he had worked for nothing he worked longer hours than when he was paid 30s. for an operation—a plumber's wage. He thought they could wipe out the idea that a doctor could not be trusted to work without a stated salary.

DR. D. DE V. WEEDON said that he thought that the personal interest and the national interest of the doctor were at variance. One was inclined to overlook some of the hardships that would be inflicted on the outside people who could not get a service. To give them a service it looked as though there would have to be some self-sacrifice of the doctor's personal interest. He thought that any fair-minded person was prepared to compromise and to sacrifice a certain portion of his own interests for the benefit of the population generally. One never knew but that one might be given a wardsman who was no use, but he was there because he was a relation of the chairman, and one's nurse's hours might be altered by a person who had no inner understanding of one's work. He listened only to one side and had not the working knowledge, and because the doctor happened to be the minority he had to suffer. Medical men were very frightened of the possible future that they made for themselves owing to the fact that they were a minority.

DR. J. E. STREETER thought that the mover of the motion had made out a very strong case for a national service, but he had not turned the obverse side of the picture at all. The civil service was seething with discontent. If the bankers ordered a depression Dr. Streeter thought that the doctors were going to be the first to have their salaries slashed. It was necessary to estimate the psychological effect on the doctors—whether they were going to be happy in a sort of militarist organization where they nominally had to control themselves. Dr. Streeter thought they had to consider very carefully before acting.

DR. J. S. BARR-DAVID thought that, considering all that had been said that night, medical men would be happier under a nationalized salaried service. At present, if they wanted to be successful, they had to have a house on the main thoroughfare amongst the noisy traffic, and the wife at the telephone, whereas under a nationalized service, they need not do their business at their residence—they could pitch their residence where they liked instead of being on the main thoroughfare. There was nothing in his opinion better than the nationalized salaried service, and when they saw Dr. Lahz, who could earn four times as much outside a nationalized service, advocating that service, Dr. Barr-David could not see there was anything against it.

Dr. Barr-David had mentioned to Sir Raphael Cilento once that there would not be the intimacy between patient and doctor under the nationalized system; but that might be overcome by permitting each doctor to engage in private practice for one hour each day when he could see his private patients. The second point concerned the fact that doctors in those health centres were going to be divided into junior and senior practitioners—if a general practitioner had been practising for twenty-five years, was he to be junior to a man who had his M.B., B.S., because this junior had had four years' training? They should all be of equal status.

Dr. Clif Tucker asked whether any suggestion had been made for compensating practitioners who had heavy commitments to meet. Some would have to meet commitments and would find it very difficult to fit into such a scheme. In regard to a nationalized salaried service, Dr. Tucker thought, as Dr. Thelander had pointed out, that the monetary remuneration would not greatly differ from the remuneration that was obtained from private practice, so that perhaps that did not affect the older members so much. But they had to look ahead to the men who were coming back from active service. They were going to find thousands of the population who were unemployed or on a very low salary basis. It would be a very difficult time for those men, and the only analogy they had at the present time was that forty years ago education was on a private basis; in those days when it was proposed that there should be a national education system no one was in favour of it. But if Dr. Tucker were to ask today, would anyone suggest that the country should go back to the private basis? Or that the education was not more efficient than it had been in the early stages? Dr. Tucker thought they would have to say that the present nationalized education was much better than any the nation had had before. He was quite sure from the point of view, not perhaps of the older men who would find a difficulty perhaps in fitting into the scheme, but from that of the young men, that there was no question that not only would nationalized service be the best for them, but the community would get a much better service. There were no end of systems in which an attempt could be made to educate the public—for instance, in regard to how they should look after themselves and what could be done to prevent them from going to the doctor for trivial causes. Dr. Tucker did not think that the fee basis should be used as an argument against the visits of patients to the doctor. Surely the only way was to educate them. It would pay such a national health service to educate them. And Dr. Tucker thought that the very best service was going to be given to the community by this system; the medical practitioners would not be greatly interfered with in their enjoyment of life and there would be very many more inducements for men to come into the profession and stay in the profession.

Sir Raphael Cilento said that, regarding compensation, several suggestions had been made. It would be recognized that the profession was divided into at least two groups: First, say, two to three thousand men away at the war, to whom every year about 200 new men were added. This represented in four years about 800 in round figures who had never practised. Secondly, there was the body of older professional men. Of these, some had still a considerable period to run; others were already 65 years of age or older, but were still practising.

Those medical men who were ultimately included in the National Health and Medical Research Council's scheme were entitled to a pension at 60 or 65 (he forgot which), and one view was that the pension was comparable to compensation for loss of goodwill.

What was the goodwill of practice? It was its saleability, and in that sense it would, of course, cease to exist. But consideration should be given not to actual saleability of goodwill, but to the intention of it—what it was for. It was, in a sense, one form of pensioning oneself. Doubtless there would be a complaints board for special cases, but this was obviously a matter which had to be discussed between all parties concerned, and it was, as a matter of fact, reserved for discussion with the medical profession.

Dr. L. J. J. Nye said that he had always been opposed to a national service because he was afraid of interference. He had discussed this question with the former Premier and he had adopted the same attitude. He thought that the service would depreciate. He would be glad if Sir Raphael Cilento would review again the method of control of these centres.

Dr. H. W. Noble asked whether the Federal Council would consist solely of doctors.

Sir Raphael Cilento said that control was again a very difficult subject, because the whole matter of control was left out of the report with the intention that it was reserved for discussion with the medical profession. For the aspect of actual administrative control, there had been laid down certain tentative groups of officials. The control of matters of a professional nature by the profession had been asked for, and Sir Raphael Cilento had no doubt that there would be no interference between doctor and patient. But matters pertaining to the use of public money had in some way or other to be under the supervision of representatives of the public. The suggestions that had been made were many, but the main one upon which there appeared to be unanimity was that there should be a group of medical men who should make up the central organization at some strategic point—for example, at Canberra. These men would control general policy, subject, he presumed, to a Minister of the Crown, and that general policy would affect the public health, hospital management of medical care, and professional activities—in general terms, medical practice and hospital treatment. Just as there would be the least interference with the patient-practitioner relationship, it was Sir Raphael Cilento's own strong feeling that the control of the hospital in a professional sense—that was to say, the institution of medical care within the hospital—would be entirely with the hospital organization itself, preferably through an advisory body of medical men, comprising the whole staff, meeting at compulsory staff conferences every month. This, of course, was not an original idea—it was merely McEachern's suggestion from his "Hospital Organisation and Management", based on the idea that there should be every month a "medical audit" of the efficiency of hospital work within the hospital by the medical men themselves.

Medical groups in regional areas would be charged with the care of the health of the people in the district, and there would be no need for any interference with them, so long as that health was maintained. There would naturally have to be a liaison officer for the administrative side—a medical man—who would report on the conduct of hospital and district in general terms, and his report would go through the chairman of the district (if the liaison officer was not the chairman).

So far as he knew, this was the nearest approach to direct control of the profession that existed in the scheme, and it was control by the most decentralized method of which he could think.

Regarding promotion, he had already pointed out that, first of all, a medical officer went up regularly with gradation of salary in the early years, but once he had made his selection of general practice or specialization as a career, promotions were determined by his effectiveness as a member of his group, and to a very great degree obviously by the verdict of that group.

Advancement would occur by the death or retirement of a senior, the transfer of an officer to a higher post, the change-over of another officer into specialty work, and so forth.

Every position of certain grades would be open to application, Sir Raphael Cilento would judge, by all officers of that grade wherever located, and although appointments would, to a large extent, be locally determined as they always were, he felt certain that there should be a power of appeal to the central body whatever it was.

He would again stress the fact that the whole matter of control was deliberately left out of the scheme except in so far as it dealt with the administrative side which handled public funds. This was in order that the matter might be discussed with the profession, and that an agreed measure of reorganization to which the profession was prepared to submit might be determined. He had no doubt that if the Federal Council of the British Medical Association put up some workable system, there would be no objection to it.

Dr. S. F. McDonald said that in talking to the younger men, specially men on service, he found that control had always to them been the bugbear. One man had said to him that he had greater faith in the members of the public than in his colleagues. The idea of officialdom was not welcome to the younger men; they were afraid of it. Safeguards there might be, but political influence would appear sooner or later. Dr. Tucker had quoted the education service which was made up of teachers and inspectors; Dr. McDonald thought the present system was a travesty of education. These young men had seen this and they wanted to know in what way State salary control was going to work in medicine.

Dr. R. P. Runple said that Sir Raphael Cilento had stated that there were two aspects—one the medical and the other the economic, but he forgot to mention the third aspect—the political. It was a question of bread and honey for the

people and the medical profession being thrown to the lions. Dr. Rundle was not prepared to trust the politicians. Certain baits were being thrown to the profession, specially the junior portion, and the largest bait of all seemed to be security. If young medical men were sufficiently spineless to fear their future, let them take the salary.

They would all like to see better medical service for the people, but Dr. Rundle could only speak in opposition to a salaried medical service. He had a poor opinion of the public service in Australia, and thought that medical men could expect very little for themselves if they entered a salaried medical service controlled by public servants. The salaried service in his opinion would tend to produce a mediocre service. The best men would not stay where their powers would be limited. In regard to salaries, if medical men started on a good salary they had no guarantee how long it would last.

Dr. L. P. Winterbotham said that it seemed to him that just as the meeting that night could represent only Queensland or Brisbane itself, so the question in Queensland differed a good deal from the same question in other States. In other States there were not the same difficulties of distances as there were in Queensland, and, as one speaker had said, it was necessary to bear in mind those people who were on the fringe of things in the outback. Dr. Winterbotham had never been able to see what plan could be adopted to deal with this question other than the one the Government had taken up, and to that extent on that particular point he thought they must say "yes" to any government scheme that would help the outback people to the requisite amount of medical care. Medical men had to think nationally, and they must not have it said of them that they were capitally selfish. He thought that was a point of view that they had to be more careful to adopt. Medical practitioners made up one of the leading sections of the community and they had to be at all times charitable, and Dr. Winterbotham did not see that they could in any case decide on any scheme until they had it before them. No scheme had yet been put forward in full and the conditions under which medical men were going to work in such a scheme. The scheme should be very clearly outlined, as also the financial provisions that were going to be made. All of them were quite agreed that in any scheme it was desirable that so far as possible group practice should be adopted. He had never yet heard any one dissent from the fact that group practice was in all points good. All doctors would like holidays, and it had always been difficult to secure a suitable *locum tenens*. All medical practitioners were having to spend practically the full twenty-four hours on the job. And there was one very important point, too, that they all wished could be carried out, and that was that a satisfactory amount of post-graduate work could be given to everybody. He personally very much regretted that he had not been able to take advantage of this more fully. He could not see how the fees point could be brought in except under some government scheme. Dr. Tucker, he thought, had mentioned the question of compensation that should be offered. This was one of the things on which the profession should be very clear before it accepted any scheme, as also the question of the senior medical officer. In view of all this Dr. Winterbotham would be inclined to vote the other way until he knew exactly what the scheme promised for those who sat under it.

Professor John Bostock suggested that a salaried service might be taken as an experiment to see how it worked. And there was another system called the guild system which would have most of the advantages of the salaried service and yet be free from political interference. If a localized service was started it would be possible to see how the plan worked.

Dr. Felix Arden said that he worked under such a scheme and had done so for four and a half years. They had in the Children's Hospital one of the nearest approaches to this. They had so many doctors on part-time and so many on full-time duty. Firstly, the patients came to the hospital and had some choice of a doctor. They stated their preference, and if they had no choice, they were drafted to the doctor who had the most available space. Secondly, Dr. Price had said that the work of the Government was impersonal. Dr. Arden doubted that. At the Children's Hospital they were under the Government and he could assert that the work was personal. The visiting doctors had many people who would wait all the afternoon to see them and would take no one else. It had been stated that people on a salary would slip into mediocrity. He felt justified in saying that there was no such mediocrity in the Children's Hospital. These patients had their few forms to sign. Dr. Arden probably signed fewer forms than any general practitioner. Dr. Price had also said that politics would interfere with the service. Dr. Arden did not agree. At the Children's Hospital they were concerned with the patients and not with politics. Dr. Price had also said that they would be hemmed in and overlooked. Dr. Arden saw Dr. Pye very seldom and submitted to no overlooking.

Professor Shedden Adam said that decentralized hospitals would become more and more specialized. It was known to be the aim of medical teachers to avoid over-specialization. It was also known that the presence of students was a stimulus to work. Then there was the very difficult question of promotion. He thought of students who had passed through his hands and would be involved in this system—the system set up to judge fellow practitioners was a very complicated one. This question of promotion was fraught with very many difficulties.

Sir Raphael Cilento, in response to a question as to the difficulties that might confront medical students unless they were given access to clinics, read an extract from an article, "A Salaried State Medical Service", in The Medical Journal of Australia, dated March 28, 1942, as follows:

> At present this training [the training of nurses and medical students] is governed to a great degree by the fact that it is bound to set aspects of hospital practice in special teaching hospitals. It has often been pointed out that the student learns in city hospitals the grossly abnormal, but fails to become familiar with the common coughs, catarrhs and minor ailments which form a considerable part of general practice. It is, of course, easier for a student, passing from the study of normal structure and normal function, to apprehend and diagnose the obviously abnormal—that is to say, those wide disparities from the normal which are seen in casualty wards and in cases of grossly established diseases. It is therefore right that he should proceed from his preclinical years at the university to the central specialist hospital for his early clinical training. But in the last two of his three years' clinical course, he should improve upon the present provision by being associated to an increasing extent with the work of the consultation centre. It is there that he will study the more difficult intermediate stages which are the clinical criteria of commencing disease, and which include both the more difficult problems of diagnosis and the more hopeful prospects of correction before serious damage is produced. Medical students and also nurses should be attached for externe work to the consulting centre during their final and penultimate years of training, and this work should involve not only dispensary practice at the centre itself, but such externe work or domiciliary visiting (in association with and under the supervision of the medical man on the consultation centre's roster for that purpose) as may be available.

Dr. W. H. Steel recognized that it would be necessary to increase the present extent of nationalized medical service. He believed in all three methods and was going to vote for the third because he believed this would be but the grounds of a national evolution. His objection to a nationalized medical service was that medical men had been deluding themselves if they thought they were going to run it themselves with the Government providing the £15,000,000, and that central administrative medical bodies—not speaking of his own group particularly—had acquired a bad habit of becoming politically minded.

Dr. L. J. J. Nye said that he thought it would be very unwise to push this all on to the profession immediately. It would come eventually, but Dr. Nye was in favour of slow evolution. When one looked back on the system it was seen to have very much on the credit side. Dr. Nye thought that as a profession doctors worked more industriously, harder and more irregular hours and gave a greater amount of free service and (he thought he was probably correct) studied more than the members of any other profession. So there were many creditable factors in practice as it was today, but there were certain factors on the debit side. A few men made unnecessary visits, a few men did unnecessary operations, and one could think of other shortcomings, such as overcharging, so that some evolutionary process could be expected. Doctors themselves should do something to discipline their own profession. Dr. Bostock had mentioned the guild system. That was a system which had intrigued Dr. Nye for some time. The profession would form itself into a guild and obtain a franchise from the Government whereby every doctor would belong to the guild. The guild would then have disciplinary measures over its

members. It would be possible to fix fees, to help people to form themselves into groups, which was, he thought, the most efficient and economical way, and also the most honest method of medical practice. The profession could even plan to send members overseas for training. Superannuation funds could also be provided. There was so much that could be done within the profession. Dr. Nye thought that medical men should definitely not stay as they were. They said that they believed in the process of evolution towards this kind of scheme laid down by Sir Raphael Cilento. The profession would help to get control of that scheme if it could form some such idea as the guild scheme.

The motion was then put to the meeting as follows:

> Should future practice be based on (*a*) a salaried government service, (*b*) a contract system based on compulsory health insurance, or (*c*) an evolution from present methods of practice.

The result of the ballot was as follows: (*a*), 17; (*b*), 4; (*c*), 34. Five members did not vote, and several had left the meeting.

Correspondence.

THE PRACTICAL RESULTS OF IMMUNIZATION AGAINST DIPHTHERIA.

SIR: From time to time I have published figures in the journal to show what immunization can accomplish in combating diphtheria in Brisbane.

I would like now to record the diphtheria figures for the five-year period 1938 to 1942—during which an intensive immunization campaign was conducted by me in this city. In this five-year period 30,045 children were fully immunized. This rate of immunization, which averaged approximately 6,000 *per annum*, was, in the period under review, well in excess of the birth rate. Here are the figures for this period:

POPULATION AND DIPHTHERIA CASES.

	1938	1939	1940	1941	1942
Population	325,890	326,000	333,560	335,520	349,680
Cases	459	505	231	202	89

The occurrence of only 89 cases for 1942 is a phenomenally low incidence in a population of 349,680 people, and Brisbane, which now has about 80% of its susceptible child population immunized, is free from the possibility of a diphtheria epidemic, but this satisfactory state and last year's record low figures can only be maintained by keeping the same high percentage of the new young susceptibles immunized.

Yours, etc.,

RALPH WEAVER,
Medical Officer of Health.

City Hall,
Brisbane,
March 1, 1943.

THE FUTURE OF MEDICAL PRACTICE.

SIR: I was greatly interested in the two articles on medical service in your issue of March 13, 1943. The first, by Dr. Davis, of Tamworth, shows that he has done a lot of constructive thinking; it is one of the best "down to the facts" articles I have read. I congratulate him on his effort. Dr. Piper's article was well written and embodied some commendable humane ideas, such as "a fair go for everybody". I am, however, greatly opposed to the principle of a salaried service; it does not require a salaried service to give everybody a "fair go", as Dr. Piper seems to think; and my opposition to a salaried service is not self-interest either, as Dr. Piper suggests of "salary opponents". Those of us who do not intend to join a salaried service would, I contend, be better off financially if a salaried service were inaugurated, because I am convinced that a salaried service will be held in so much disrepute by the community that patients will attend it for minor ailments only and go to the private practitioner for anything they consider "serious". So please, Dr. Piper, don't charge salaried service opponents as "conservative die-hards" with a financial self-interest; anyhow, what does it matter much to us approaching the fifty mark or those over fifty years what sort of service is adopted; it matters nothing to us personally; in any case we only have 10, 12 or 15 years to go and our professional career is over. In the big decisions about to be made the fate of the medical profession will be decided for centuries to come, and I, and I think many others, would like our sons to practise in the same respected and honoured profession and not become starchy units of a government doctor service. Sweeping improvements must and will be made, but I trust the medical profession has sufficient stamina to prevent itself deteriorating into a government department as it surely will under the salary scheme. A salaried service may work very well for the masses of Europe and Asia, but it will not fit in with the Australian character, which includes the qualities of individualism, initiative, enterprise and ambition. It is these qualities which have given Australia one of the best general practitioner services in the world during the past years; it is the same qualities which have made the Australian soldier famous; in fact, it is these qualities which go to make up every typical Australian.

The salaried service supporters, judging from their letters, would work just as well or better on a salary; I doubt this very much. A man may give of his best in a public health medical service (that is, salaried), but in this service there are no unnecessary night calls or irritating pin-pricks as in general practice. Put this same man into a lodge general practice on a salary with fifty or sixty lodge patients waiting for him every morning and every evening, with nothing the matter with one-third of them and with another third of them incurable chronics, the unfortunate sufferers of, say, bronchiectasis, arthritis or neurosis; put him there with the knowledge that the nicer he is to them and the better he treats them, the more they will come along with their trivial ailments; if at the end of a year he can sit back and say he has enjoyed his year's work, then I say he is the atypical Australian temperament and not the typical Australian. A salaried service is the best method I know of to make doctors irritable and uncivil to their patients, and the best method to bring the medical profession into disrepute; as a result of this, quacks will spring up all over the country and they will certainly flourish. Several doctors have told me that they would prefer to leave the profession and practise as a quack should a salaried service become compulsory.

No, sir, a salaried service will not work for Australia.

Dr. Piper says a salaried service will eliminate competition and jealousy in the profession. It may seem strange for me to state that once you eliminate jealousy in the profession, you have (as in romance) doomed its success. Just think now, a doctor who has been striving for weeks to bring a good end result of any treatment is suddenly told that his patient has gone to another doctor. The first doctor would naturally be a little hurt and jealous, but in a salaried service, would he be hurt? No, certainly not. He would be only too glad to get as many off his hands as possible, simply because he collects the same salary anyhow. Some friendly societies complain that their patients do not get a fair deal in medical treatment; the patients will have reason to complain when a salaried service is inaugurated because they will then get a really raw deal from the discontented doctors. It is hard to put such things about ourselves down in cold type, but we must be realists; we must also realize that doctors are only human beings and we must use much more imagination and understanding of human psychology then is exercised in some quarters.

New order talk these days appears to be the fashion. That a new order of some sort, probably of a socialistic trend, will result from this war most people appear to concede. This means equal opportunity of security for all. But a salaried service is the worst possible method of gaining this objective as regards health. How many patients have been comforted in their sickness and anxieties by just a little simple natural psychology from the doctors? To the cold-hearted individual this will seem silly, but it is just where the salaried service is going to fail: there will be no comforting words from the government salaried doctor; the service will be icy like any other public service and there will not be security in the attainment of health; there will be deterioration of health. I can hear someone say: "Nonsense, what about Germany?" The obvious answer is: "If the new order is going to take us as far as the totalitarian order, what are we fighting for now?" The doctor not giving efficient service in these countries may be gaoled or even shot, which naturally keeps the others up to the mark. Our danger lies in an intermediate post-war order, which would be partly democratic, partly fascist, which means that part of the population (for example, doctors) will be regimented and part will be allowed the right of private enterprise. This is surely not a fair and

right principle. Some will say: "Oh, but the medical profession exists for a national purpose, the people's health, so must be on a salary basis." What trash this is; the market gardener with his vitamin-containing products, the orchardist, the wheatfarmers, the dairymen, the graziers, the grocers and bakers and all other trades and professions dealing in foodstuffs are vital to the national health and preventive medicine, so why not nationalize these also? Let us at least claim consistency in any new order.

For constructive suggestions, I submit that a service based on fee-per-service principles would produce results which would most satisfy the people and which would make for a contented profession. Sickness should be insured in the same way as accidents are insured under the *Workers' Compensation Act*. Here the doctor is allowed seven shillings and sixpence per visit under Schedule E. Of course, this fee would not be actuarily sound with general sickness. If the general practitioner were allowed one shilling and sixpence or two shillings per visit, I think it should be acceptable. Say 60 consultations daily, 30 on Saturdays—330 at 2s.—660s. per week—£33, that is, say £1,600 a year without extras for which there would be a schedule XYZ. I suggest this for everyone under £10 per week; private practice would be additional. Young doctors leaving the army should receive army pay for three years after entering practice to give them a chance to get on their feet. It seems to me that the possibility of fee-for-service has not been sufficiently explored. A general practitioner basis must first be worked out; then the working out of the superstructure of specialties will follow. As I am not in general practice I have no self-interest in any figures quoted. I am simply advocating the fee-for-service principle.

Yours, etc.,

Sydney, March 20, 1943. A. LESLIE WATSON.

THE PLACE OF QUININE IN THE TREATMENT OF SUBTERTIAN MALARIA.

SIR: In your issue of March 13 Dr. Barrowman suggests that the passage of *Plasmodium falciparum* through two or more ethnological groups is a possible causative factor in the production of blackwater fever.

Fairly recent arrivals in highly endemic centres of malaria are the most usual victims of blackwater fever, and it is true that they are generally of a different race from the local inhabitants, but this susceptibility is generally explained on a basis of immunity; the newcomer, being non-immune, is subject to more frequent and more intense attacks of malaria than the relatively immune indigenous population. In the Bengal Dooars (plains of northern Bengal at the foot of the Himalayas), native Bengalis from Calcutta, who go to this area to work on tea gardens, are found to be just as liable to blackwater fever as are Europeans, because they have lived formerly in the relatively malaria-free Calcutta, and are therefore highly susceptible.

In this connexion it is also of interest to note that *Plasmodium knowlesi* in its natural host, the monkey *Macacus cynomolgus*, causes only mild infections and no signs of disease, whereas, when transferred to *Macacus (Silenus) rhesus*, it is liable to cause a rapidly fatal disease with all the clinical signs of blackwater fever.

Yours, etc.,

PHILIP A. MAPLESTONE.

Lachlan Park Hospital, New Norfolk, Tasmania. March 23, 1943.

HAY FEVER.

SIR: Your leading article on the use of potassium for allergy, especially hay fever and rhinorrhœa, is timely.

I have used potassium chloride grains 5 three times a day and diminished sodium chloride to some extent, and in some cases the result has been definite amelioration, though not cure.

The problem is how long could this cure be continued with safety? Dr. Lawton informs me that large doses, except for a short period, may cause kidney difficulties. I think the explanation by Kean as quoted in your leading article is probably correct. The improvement is due to indirect action.

Anything which improves this distressing condition, accompanied as it often is by watery discharge from the conjunctiva, is worth careful consideration.

Yours, etc.,

103-105, Collins Street, Melbourne, March 23, 1943. JAMES W. BARRETT.

THE DYSENTERIES.

SIR: I have read with interest in the issue of February 20 your report on the subject of the dysenteries.

There was one aspect of the problem that was not commented upon as such. I refer to the conditioning factors, or the factors of governance concerning the dysenteries. These terms may require a little explanation. It was Ruskin who said something like this: "All things are in all things, and according to our mind and capacity, we see the one in many and the many in one." And of Metchnikoff it is said: "The main significance of Metchnikoff's work on immunity is that it marks the incursion of the trained biologist into the study of infective disease, and his peculiar merit is that he introduced the comparative method into a field which has hitherto been in the possession of those who had the extreme anthropocentric view of the physician, or of those who, like Pasteur, had no training in biological science." ("Principles of Bacteriology and Immunity", Topley and Wilson, Volume II, page 632.) It is therefore rational that we proceed as follows: Let us consider the matter of a blood transfusion first, and by a process of incursion and insight consider then the dysenteries. First there are the (*a*) indications for the blood transfusion and the technique. Then there is the (*b*) typing of the blood. There are four groups, I, II, III and IV. These blood groups may be called the conditioning factors in regard to blood transfusing.

Now we have a similar and equal line of reasoning in the matter of the dysenteries. First there are the two primary considerations: the epidemiology so ably dealt with by Dr. Sawers, and the disease equally clearly dealt with by Dr. Calov. Then we have the four conditioning factors, and these were acknowledged by all those who took part in the discussion. But summarized they are: (*a*) biology and bacteriology, (*b*) clinical science and treatment (including teaching), (*c*) public health and hospitals, (*d*) camps and institutions and the medical services.

Yours, etc.,

J. L. WHITWORTH.

Kalorama, Victoria, March 25, 1943.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 66, of March 25, 1943.

ROYAL AUSTRALIAN AIR FORCE.

Citizen Air Force: Medical Branch.

The following Flight Lieutenants are transferred from the Reserve for full-time duties, with effect from 1st February, 1943: G. H. Cranswick (6821), W. R. Brodrick (6823), D. D. Cunynghame (7084).

The following is appointed to a commission on probation with the rank of Flight Lieutenant, with effect from the date indicated: George Basil Goswell, M.B., B.S. (7238), 8th February, 1943.

The probationary appointment of Flight Lieutenant (Temporary Squadron Leader) A. S. Anderson (6714) is confirmed.

The probationary appointments of the following Flight Lieutenants are confirmed: I. D. R. Gardiner (6408), O. K. Kewish (6693), C. R. E. Stephens (6320), E. A. M. Ryan (5908), H. E. Williams (5176), M. J. M. Black (5944), V. W. J. O'Reilly (6733), E. F. Northcroft (6734), V. W. Potter (2875), R. E. Hearn (6390).

Joseph Segal, M.B., B.S. (267406) is appointed to a commission on probation with the rank of Flight Lieutenant with effect from 22nd February, 1943.

Reserve: Medical Branch.

Leon Louis Marshall, M.B., B.S. (7388) is appointed to a commission on probation with the rank of Flight Lieutenant with effect from 30th January, 1943.—(Ex. Min. No. 70—Approved 23rd March, 1943.)

The following are appointed to commissions on probation with the rank of Flight Lieutenant with effect from 30th January, 1943: Michael Barry, M.B., B.S. (7236), James Keith Livingstone Marks, M.B., B.S. (7392).—(Ex. Min. No. 77—Approved 23rd March, 1943.)

The following are appointed to commissions on probation with the rank of Flight Lieutenant with effect from the dates indicated: John Kargotich, B.Agr.Sc., M.B., B.S. (297400), 30th January, 1943; James Rennick Watt, M.B., B.S. (257402), 22nd February, 1943.—(Ex. Min. No. 80—Approved 23rd March, 1943.)

CASUALTIES.

ACCORDING to the casualty list received on April 1, 1943, Major G. N. S. Campbell, A.A.M.C., Vaucluse, Captain F. F. Elliott, A.A.M.C., Merewether, Captain F. H. Mills, A.A.M.C., Bellingen, and Captain F. R. Reid, A.A.M.C., Maroubra, who were previously reported missing, are now reported to be prisoners of war.

According to the casualty list received on April 2, 1943, Captain J. E. Throssell, A.A.M.C., Mount Hawthorn, and Captain G. M. Crabbe, A.A.M.C., New Norfolk, who were previously reported missing, are now reported to be prisoners of war.

According to the casualty list received on April 2, 1943, Major R. St. C. Meiklejohn, A.A.M.C., Belmore, is reported to be deceased.

Obituary.

THOMAS ERIC PARKER.

WE regret to announce the death of Dr. Thomas Eric Parker, which occurred on April 3, 1943, at Ashfield, New South Wales.

Research.

DR. ARTHUR JAMES EWINS.

DR. ARTHUR JAMES EWINS, Director of the May and Baker Research Laboratories, has been elected a Fellow of the Royal Society. Dr. Ewins was head of the team of workers who discovered "M & B 693", sulphathiazole and a new group of amidine compounds.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Newman, Norman Ludlow, M.B., B.S., 1937 (Univ. Sydney), Group 454, Royal Australian Air Force, Base P.O., Perth, Western Australia.

McGirr, John Joseph Gregory, M.B., 1942 (Univ. Sydney), Mater Misericordiæ Hospital, Waratah.

Fiaschi, Elisa Berta Alexandria, M.B., 1939 (Univ. Sydney), King George V Memorial Hospital, Camperdown.

Medical Appointments.

Dr. Felix Wilfrid Arden has been appointed a member of the Medical Board of Queensland under the provisions of *The Medical Acts*, 1939-1940, of Queensland.

Dr. William Samuel Leicester has been appointed Government Medical Officer at Gin Gin, Queensland, under the provisions of *The Medical Acts*, 1939-1940, of Queensland.

Books Received.

"Encephalitis, A Clinical Study", by Josephine B. Neal, A.B., M.D., Sc.D., F.A.C.P.; 1942. London: H. K. Lewis and Company, Limited. 9¼" × 6", pp. 581, with illustrations. Price: 42s. net.

"The Design of Experiments", by R. A. Fisher, Sc.D., F.R.S.; Third Edition; 1942. Edinburgh and London: Oliver and Boyd, Limited. 9" × 5¾", pp. 248. Price: 12s. 6d. net.

Diary for the Month.

APR. 13.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
APR. 20.—New South Wales Branch, B.M.A.: Ethics Committee.
APR. 21.—Western Australian Branch, B.M.A.: Branch.
APR. 22.—New South Wales Branch, B.M.A.: Clinical Meeting.
APR. 27.—New South Wales Branch, B.M.A.: Medical Politics Committee.
APR. 28.—Victorian Branch, B.M.A.: Council.
APR. 29.—New South Wales Branch, B.M.A.: Branch.
APR. 29.—South Australian Branch, B.M.A.: Branch.
APR. 30.—Queensland Branch, B.M.A.: Council.
MAY 4.—New South Wales Branch, B.M.A.: Organization and Science Committee.
MAY 5.—Victorian Branch, B.M.A.: Branch.
MAY 5.—Western Australian Branch, B.M.A.: Council.
MAY 6.—South Australian Branch, B.M.A.: Council.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia.

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